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ABSTRACT

Finding that the promotion of a national information industry can best be pursued through the planning and establishment of a national teledocumentation network, this study (based on the experiences of Spain) offers a model that may be of interest to UNESCO (United Nations Educational, Scientific and Cultural Organization) member states wishing to develop a viable online searching or national teledocumentation strategy. Following an introduction, the document contains 11 major sections: (1) Typology of Public and Private Bodies Participating in the National Teledocumentation Networks; (2) Introduction and Promotion of Teledocumentation Services; (3) Need to Endow the Promotion Group with Independent Legal Status; (4) Getting Started in Teledocumentation; (5) Structure of the Teledocumentation Sector; (6) Management Body of the Promotion Group; (7) Training of Specialists in Access to Databases; (8) Dissemination and Marketing of Teledocumentation Services; (9) Stimulating a Spirit of Cooperation among Teledocumentation Intermediaries; (10) Development of the Database Production and Distribution Subsectors; and (11) Building Up Research and Development and Consulting Capabilities for the Launching of New Value Added Services. Detailed descriptions of specific activities are contained in a series of annexes. (THC)

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PLANNING AND ESTABLISHMENT OF A NATIONAL TELEDOCUMENTATION NETWORK - GUIDELINES BASED ON THE SPANISH EXPERIENCE

Fundación para el Fomento de la
Información Automatizada (FUINCA)

with the editorial assistance of
F.V. Mahon

General Information Programme and UNISIST
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PREFACE

Perhaps the most impressive advance in information work in recent years has been the ability to query, in conversational mode, nearly 3000 databases located on remote host computers throughout the world in order to receive fast and precise replies to specialized problems in all fields of knowledge. The technology of on-line searching, or "teledocumentation", is becoming more and more widely used by both information specialists and end-users, and its accessibility to all Member States, particularly the developing countries, has become a key goal of Unesco's General Information Programme. There are, however, a number of issues to be considered by countries wishing to establish viable teledocumentation services--not only technical and financial questions but also aspects such as organization and coordination, supporting services and infrastructure, training of information specialists and users and marketing. There is also the need to ensure that access to databases abroad does not hinder the attainment of goals concerning the development of national databases and database distributors.

A number of countries have found that the promotion of a national information industry can best be pursued through the planning and establishment of a national teledocumentation network, and the present study, based on the experience of Spain in this area, is offered as a model which may be of interest to other Member States wishing to develop a national teledocumentation strategy. It has been prepared under Unesco contract by the Fundación para el Fomento de la Información Automatizada (Foundation for the Promotion of Computerized Information) which is the management body of the Spanish national teledocumentation network, with the editorial assistance of Mr. F.V. Mahon, Head of the Euronet-DIANE Team of the Commission of the European Communities.

Readers' comments and suggestions on this study, especially concerning its relevance to particular national situations, are sincerely invited and should be addressed to:

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Requests for additional copies, which are available without charge, should be sent to the same address.

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0. INTRODUCTION

In the years between 1960 and 1965 a quiet revolution took place in the field of publishing or at least is one particular part of it. Prior to that time libraries and documentation centres had become accustomed to the fact that the 'currency' of most abstracting and indexing services, that is the delay between original (primary) publication and its appearence in abstract or indexing (secondary) sources, was of the order of six months and often greater. While this was acceptable when balanced against the general value of secondary services as comprehensive sources of information, the delay was progressively deteriorating. With the significant increase in the volume of published material during that era the secondary publishers, especially in science and technology, were faced with the prospect of further deterioration in the currency of their product.

Fortunately, during that same period of the early 1960's data processing was making considerable progress. The relative cost of processing and storage of data was declining when compared with other costs and new, more efficient, software was available. The secondary publishers turned to the computer to assist them in the preparation of their publications and so arrest the erosion of efficiency.

One by-product of this change in the method of preparation of abstracting and indexing services was the availability of the text on magnetic media capable of being processed, in general, by any computer. The primary purpose was to use this form of the material to 'drive' typesetting equipment for the production of the printed volumes but it was quickly realised that other types of information services could be provided from the machine readable data. Originally these were simply based on using the computer to sort the data into catagories or select material in a given area. This type of service was normally provided in batch mode that is that the data was loaded into a computer and compared with a 'question' which selected the items. The output was a subset of the data which covered the subject of the question.

By 1970 further progress in data processing had made it possible to carry out this procedure in 'real time', that is by continuous interaction with the data to refine the question, based on previous results. The combination of this real time interaction and access to the computer via telecommunications meant that significant economies of scale could be achieved. Many users could interrogate the data (contained in a database) from locations remote from the computer site and, as efficiency improved, the computer could support many users simultaneously. Thus 'teledocumentation' was born.

Teledocumentation has evolved from these relatively limited beginnings into a significant industry in its own right. The original abstrating and indexing pioneers have been joined by a wide range of database producers from the publishing sector and by completely new organisations attracted by the potential. Data processing has continued to progress exponentially and efficient, low cost, telecommunications has contributed significantly to the expansion.

In the case of the bibliographic databases which are probably still the most widely used category, teledocumentation provides a quick and efficient means of identifying that a book or journal article exists in a given subject but does not provide the totality of the item. From other databases, which are developing today at an even greater rate, the user can be provided with the full text of documents or with numerical data he may require. In either case, there can be no question that teledocumentation services significantly improve the efficiency with which an information and documentation centre or individual users themselves can obtain access to the vast amount of published material available today. No organisation, public or private, whose remit includes provision of information can afford to ignore the potential provided by teledocumentation services today.

Whereas considerable progress has been made in the field of teledocumentation in the past ten or fifteen years the fact remains that it is a relatively expensive process to set up and maintain an efficient teledocumentation network in a given subject field or fields or in a given geographical area. This report is intended to provide practical guidelines for the establishment of efficient teledocumentation systems and services.

The teledocumentation process involves three distinct but interrelated participants; the database producer who collects and collates data in a given field or fields and provides the basic raw material; the distributor or host who may be associated with the database producer or be a separate entity, who provides the computer power necessary for interrogation of the database and finally, but not by any means the least significant, the provider of telecommunication services who enables individual users or documentation centres to access the database on the host and identify relevant information. A fourth participant is the intermediary (or information broker) who is often called upon to conduct searches for information on behalf of the end-user.

In keeping with the need to provide the services of teledocumentation in the most efficient manner possible these guidelines emphasise the element of cooperation between individual centres in the creation of a complementary network of services. For that reason they start from the point of identifying the possible partners in such cooperation and the form of association that might be considered. In fact the theme of cooperation is present throughout the text not is the sense of a rigorous requirement, but as an illustration of the practical advantages to be gained.

Although significant progress has been made in teledocumentation it is, as is pointed out in this report, in a state of continuous evolution. The circumstances of a particular country or region will influence the form in which teledocumentation will develop as also will the policy of the authorities. These guidelines are based upon the experiences of a particular form of cooperation in one country over a particular period of time. It is inevitable that faced with the requirement to do the same thing to-day certain actions would have been different and certain events would have had different results. Therefore these guidelines should be seen as the description of a series of activities which need to be considered in setting up a teledocumentation network, the order and effectiveness will depend on local circumstances.

It is almost inevitable, in dealing with teledocumentation, to get the impression that the older, more traditional means of document handling are less important. It should therefore be emphasised that, in compiling these guidelines, the complementarity of teledocumentation networks is presumed to include the provision of efficient document stores either locally to the teledocumentation centres or as active participants in the network environment.

As far as possible the text has been prepared in such a way that there is a natural progression. Detailed descriptions of particular activities are contained in a series of Annexes. Given the heterogeneous nature of the subject this form of presentation does not always succeed but if the volume is seen as a combination of descriptive narrative and reference source its usefulness should be appreciated by those who are either individual participants in teledocumentation networks or providing the policy and managerial inputs to such networks.

1. TYPOLOGY OF PUBLIC AND PRIVATE BODIES PARTICIPATING IN THE NATIONAL TELEDOCUMENTATION NETWORK

When launching the project for the creation of a national teledocumentation network the first thing to be evaluated will be the profile of the entities which should and can be integrated into the network.

An analysis should be made of the characteristics of:

- The organisations most directly involved in teledocumentation
- The public and private organisations which would provide a multiplier effect for teledocumentation dissemination activities.

1.1. PUBLIC ORGANISATIONS MOST DIRECTLY INVOLVED IN TELEDOCUMENTATION

In the first phase of the creation of the national teledocumentation network there will be a nucleus of entities acting as pioneers or promoters of the new development. These normally tend to be public organisations which, either because of their own particular activity or through co-operation agreements with other countries, have succeeded in assimilating and introducing a teledocumentation service into their institution.

As an example, in Spain, the first institution to have a database access terminal was the Instituto Nacional de Técnica Aerospacial (INTA - National Aerospace Technology Institute) acting as Spanish representative of the European Space Agency (ESA).

This was the basis of the formation of the first group of founder institutions which, under the sponsorship of the Fundacion de la Compania Telefonica Nacional de Espana, set up the embryo for the future national network of teledocumentation centres with the documentation institutes under the responsibility of the Higher Council for Scientific Research.

Generally speaking, any public organisation which includes documentation amongst its activities and whose structure includes a documentation centre will be suitable as a founder member for the network.

In addition to these types of organisations, it will be useful to consider other institutions working in the field of new telematics technologies, or planning to do so, as participants.

Once the first group of public promoting bodies for the national teledocumentation network has been set up, it may be worthwile to create an association or other form of cooperative between them so as to endow the group with its own independent legal status (see section 3).

1.2. ENSURING A MULTIPLIER EFFECT FOR TELEDOCUMENTATION ACTIONS

Once the founder group has been created, it will be necessary to initiate actions for teledocumentation use in the entities which, by their nature and activity, will be users of the new services.

The first institutions to be considered here are the universities and higher education centres. The libraries and documentation centres in these institutions should have guaranteed access to information they require to continue the research they are conducting.

One of the problems which may occur at universities and higher education centres is the lack of budgetary provision for such work, in which case it would be advisable to seek subsidies for launching and installing teledocumentation centres in such institutions.

These funds could be sought and managed via the institutions taking part in the founder group, in such a way that the actions of this group could be extended to the benefit of other institutions.

In addition to these public centres participating in the network, there are other types of public or private bodies through which the dissemination of the new service could be performed:

- Business or professional associations

- Development or productivity agencies

- Business activity promotion organisations

- Banking institutions

At present, firms big and small need and use various types of information although the requirements vary depending on the size of the firm. Large firms usually have sufficient resources to set up efficient documentation services. On the other hand the small and medium-sized firm either does not have the funds with which to finance such operations or does not have the time or adequate staff to perform them.

When it comes to initiating the access to the new teledocumentation services these factors will need to be analysed so as to be able to formulate helpful promotional policies.

Within the group of private centres, the business or professional associations - because of their organisation and objective - can be classified as the sort of organisation which could provide an important multiplier effect for teledocumentation dissemination activities.

It should be borne in mind that one of the objectives of these associations is to give "information" to the business or professionals in the group. So, as a first step, it would be best to instal teledocumentation centres within the associations. This necessarily has a multiplier effect such that in the second stage, once the effectiveness of the new system has been proved, such information centres could be set up in some of the firms of the associations.

The same may be said for the development and productivity agencies. One of the main objectives of these organisations is often to provide business consultancy services; such services can and should be supported by reliable sources of information. Therefore, in addition to traditional sources of information, database access terminals should also be available.

If there exist groups of businessmen, it will be necessary to disseminate information on the existence of new business opportunities, provided through databases, to such groups. The members of such groups may then turn to a business association or development agency for access to the database services.

Lastly, concerning banking institutions, it should be remembered that the various functions carried out by banks are closely related to information. The growing importance of the information sector in banking is due to the nature of today's banking operations, in that banking activity has now virtually become one of storage, processing and distribution of information. Banks are increasingly involved in the purchase and sale of information services, and furthermore they are becoming more and more dependent upon sophisticated data networks, and they may be said to be among the most important users of worldwide database services.

In addition banks and bankers are in regular contact with their customers, in many cases in an advisory or business development role. Therefore they have a dual activity - being well informed themselves on general economic activity and in encouraging their clients to be well informed.

2. INTRODUCTION AND PROMOTION OF TELEDOCUMENTATION SERVICES

2.1. IMPROVING THE USERS' AWARENESS AND KNOWLEDGE OF TELEDOCUMENTATION

Prior to the study of behaviour of user sectors in relation to the possibility of interactive access through a terminal to databases with scientific, technical, social or economic information for certain specific sectors of society (universities, companies, government administration, public libraries), a brief overview of the technological environment of database users would be useful.

A study is presented below of the main user sectors for teledocumentation:

- University and research centres
- Enterprises, business sector
- Government administration

For improving user's knowledge of such services it is necessary to analyse and evaluate the relative advantages of teledocumentation for each of the sectors.

2.1.1. MAIN SECTORS USING TELEDOCUMENTATION

One of the sectors which may be considered as a potential user of databases is that of universities and research centres, since they require information to carry through their basic and applied research activities.

In the countries of Europe studies on the usefulness of online services for this sector have been carried out, and programmes for subsidising experiments in interactive information retrieval in universities and research institutes have been instituted.

One of the consequences of such aid has been that a great number of university libraries taking part in the projects have continued and extended their teledocumentation services.

Alongside these projects, other factors may be considered that have directly contributed to the use of teledocumentation in this sector, such as:

- the growing awareness by university librarians of the potential of teledocumentation
- marketing campaigns by producers and distributors of databases and online services
- the improvement of the national teledocumentation infrastructure.

Like any other innovation, the rate at which teledocumentation is adopted by university libraries has varied considerably. Certain libraries have been promoting these services for several years now, whereas others have only initiated them recently and lastly there are others that do not have any plans for promoting or developing this type of service.

Another sector with a high potential as a database user is business, since in order to conduct any innovative and/or decision-making process it is vital to be in possession of up-to-date and comprehensive information for manufacturing and marketing activities.

External information, (information that does not originate from within the company) of a scientific or technical nature (technical reports, research in progress, existing industrial products, etc.), or of a technical and legal nature (patents and trademarks, know-how, freely available technology, etc.) or of a technical and economic nature (technological forecasts, statistics on exports, imports, domestic consumption, etc.) is needed by companies in order to introduce innovation in their products, processes and manufacturing procedures. A company's ability and skill in highly competitive markets and therefore its continued success in such markets is often dependant on the quality of the information it has available.

The need to have such information was what prompted the setting up of systems in these organisations, designed to make access to such information easier through low-cost and easy to operate terminals and making it possible to obtain more relevant items of information.

There are many examples of companies which have established an information centre using the latest technology. As a result of the experience gained in installing such centres, the following conclusions have been reached:

- The availability of interactive information retrieval products is increasingly necessary to satisfy requirements for information in research and development.
- There are marked differences in information demand between the different groups of users within a research and development organisation.
- There is a need for a specialist with sound training in interactive information retrieval, particularly when the various research groups do not have their own information intermediaries.
- Users with a certain amount of experience can easily learn how to carry out simple interactive searches.

Finally, government and administration is the third sector considered as a database user, since information is required for relevant political and operational decision-making, etc.

The most representative example of this would be the policy-making bodies which are linked to the highest offices in the national government, since they are responsible for making top policy decisions on economics, health, commerce, science, environment, technology, etc. In order to meet this need for information, there may be agencies or information centres within these bodies and in each of the sectors of the administration, charged with obtaining and supplying the necessary information in each case.

These centres should be co-ordinated and equipped with suitable technology in order to respond appropriately to the increasingly heavy demand for information. Government and administration generally requires, in addition to external sources, its own information resources. Both should be accessible in rapid and effective form, meaning that automation is essential.

2.1.2. ADVANTAGES OF TELEDOCUMENTATION

Teledocumentation services offer their potential users a set of relative advantages in comparison with traditional manual information retrieval services.

One of these is the speed with which the relevant information can be retrieved from the huge volumes of information in store.

Similarly, the use of interactive terminals makes it possible to have access to different "information stores" dispersed in various countries having database distributors.

The formulation of the inquiry is easy, although it requires a certain amount of specialisation on the part of the person conducting it, and it offers the advantage of conversational interaction with the computer to refine the inquiry online.

However, the greatest advantages from the use of interactive database access terminals are probably to be had in the economic area, since they convert a significant amount of organisations' needs to possess information - as reflected in subscriptions to magazines, information services on patents, etc., into the need to have access to information.

3. NEED TO ENDOW THE PROMOTION GROUP WITH INDEPENDENT LEGAL STATUS

The Promotion Group for the national teledocumentation network is made up of various institutions, each of which has its own objectives and structure and is independent from any other; however they are all associated in a single mission: the promotion and creation of a national network of teledocumentation centres.

In order to attain this objective a co-ordinating body is required, capable of independent functioning; it would therefore need to be endowed with its own independent legal status enabling it to act consistently under the direction and policies set out by all organisations in the Promotion Group. This co-ordinating body will need a separate budget in order to carry out agreed actions, and needs its own staff to implement such actions.

Various legal forms should be identified for analysis as possible legal frameworks for the activity of the new body: Obviously it will be necessary to analyse the legislation prevailing in the area of associations or forms of association in the country concerned, so as to select the most appropriate formula for the characteristics of the Promotion Group.

Once the new body has been formed, it will be able to carry out the policy set out by the policy making group composed of the promotion institutions, and may act as executive or management body for the activities, promotion and creation of the network.

3.1. TRANSITORY SOLUTIONS

Transitory solutions should be studied to allow the Promotion Group to carry out its objectives until it is endowed with its own legal status.

One of the possible solutions to be analysed is the association of the entities in the Promotion Group, through an inter-institutional agreement, signed by all such institutions. The signature of such an agreement is equivalent to a gentleman's agreement amongst the signatories to undertake the actions agreed therein, and it implies no form of legal undertaking whatsoever. Initially, this formula should make it possible to initiate the period of development of the network; it merely requires a firm desire to collaborate on the part of the signatory parties in order to carry out this work.

The only problems which could arise, are those relating to hiring of staff, the establishment of a budget, etc., since there is no legally constituted entity; these problems could be partially solved if a management body were formed as part of one of the participating entities, and to which the necessary powers for implementation and management could be given under the authority of the signatory bodies of the agrement. An (interim) management committee could be set up for this purpose.

Each of the institutions in the Promotion Group would be represented on this committee and it would name one responsible officer or manager to carry out the agreed actions.

Once the operation of the management committee has been tried, it will be possible to move on to the phase mentioned in the previous paragraph, that of endowing the group with its own independent legal status.

3.2. THE TELEDOCUMENTATION PROMOTION GROUP

It is appropriate to set out the functions and final aims for which the Promotion Group for teledocumentation has been set up, particularly bearing in mind that it is the embryo for the future national network of teledocumentation.

3.2.1. GENERAL OBJECTIVES OF THE PROMOTION GROUP

In any inter-institutional agreement signed by each of the institutions in the promotion group, the objectives of the agreement should be set out. As has already been noted, the agreement will have to provide for the co-ordination of the teledocumentation units in the signatory institutions with the primary aim of:

- acting jointly, within the context of a joint development plan, for the creation of an infrastructure of national services for access to international and national databases

- promoting existing and future teledocumentation services both geographically - in order to define information requirements at the sub-national level and to locate appropriate teledocumentation facilities in all regions of the country - and as regards disciplines or areas of knowledge, so that centres, through specialisation in given subject areas, can enhance documentation services to the country's scientific, business and technical communities.

- promoting the vast range of services that could be offered by the teledocumentation units or centres in the signatory institutions, so that through the joint promotional action of them all, it will be possible to build up an image of a single network vis-à-vis the community of users, strengthened and enhanced by the mere fact of pooling together resources and services.

- optimising the allocation of resources (economic, material and human) by the participating institutions, reaching agreements on joint interest plans or schemes, leading automatically to the necessary economies of scale, so that national teledocumentation services achieve a degree of self-funding which can guarantee their continued existence.

In order to attain such objectives, the institutions in the promotion group that have signed the agreement should agree to participate jointly in the development and administration of the national network, formed by the respective teledocumentation service units. Each of the participating centres in the network will participate in and/or benefit from the action carried out by the group, with a view to achieving the necessary promotion and use of teledocumentation services around the country, and it will provide a range of common service arrangements for information access and retrieval, whilst retaining its particular institutional aspects or characteristics.

For the agreement to be truly effective, and as consequence of its national character and its role in developing a network of different centres, the agreement should be open to other institutions to join.

3.2.2. APPLYING THE GENERAL OBJECTIVES TO THE PHASES OF TELEDOCUMENTATION DEVELOPMENT

All the above-mentioned aims and objectives will have to be continuously adapted to the development of teledocumentation in order to achieve the greatest possible effectiveness.

In the first phase the primary aim of the promotion group should be national promotion of the use and exploitation of teledocumentation technologies.

However, in teledocumentation activities, it is not just the information centres and users that are involved. Other key participants in the process are the database producers and distributors and the data network. They, together, form what is called the database industry. Therefore, the aim of the subsequent stages of the work of the promotion group must be linked to development plans which promote the building of a national database industry. In order to bring about this adaptation the objectives of the group will have to be defined in terms of the subsectors of the database industry (producers, distributors, data networks, teledocumentation centres and users).

Examples of the activities to be undertaken by the Promotion Group as teledocumentation services develop are:

- to publicise the achievements and promote interchange of experience among database producer institutions, present or potential, in the country,

- to collaborate in the consolidation of initiatives undertaken by institutions or companies in the country to set up a network of distributors,

- to promote the use of the data networks in the country, if in existence, and analyse the viability of future services (videotex, facsimile, etc.),

- once the national teledocumentation centre network has been set up, to help the centres to act as mediators between the information resources and the users,

- to stimulate the market of potential users needing teledocumentation for their research and development activities (e.g. universities), production and marketing (e.g. industrial companies) or in general for political or operational decision-making.

A case study on the development of the teledocumentation network in Spain is presented in Annex I.

4. GETTING STARTED IN TELEDOCUMENTATION

4.1. IDENTIFYING, TESTING AND EVALUATING NATIONAL CAPACITIES FOR ON-LINE ACCESS TO DATABASES

When the time comes to set up teledocumentation centres in a given country, one must identify and evaluate national capacities for access to databases through telecommunications. This section reviews the actions to be carried out and the factors to be taken into consideration in assessing the level of development of a country's telecommunication infrastructure.

4.1.1. FACILITIES FOR ON-LINE ACCESS TO DATABASES

The telecommunications and informatics infrastructures necessary for making a connection to a national or international database can be summarized as follows:

TELECOMMUNICATIONS INFRASTRUCTURE: Nationally, a telecommunications network is required, to act as a transit channel for the exchange of information between remote points.

The public networks which can be used for connection to databases are:

- The telex network
- The automatic telephone network
- A specialised data network

Any of the above networks is an appropriate channel for the transit of information, but they differ considerably in capacity (volume of information conveyed), speed (rate of transfer) and reliability (transmission error rate).

In broad terms, the capacity, speed and error rate improve as one moves from telex through telephone links to a specialised data network. Each of these networks is or may be connected to other, similar networks in other countries and therefore offer the possibilities for international access to information services.

The optimum solution is provided by the availability of a specialised data network which, used in conjunction with the public telephone network for 'local' access, offers the most reliable and economic means for access to databases.

In the event that such a network does not (yet) exist the other solutions are (in order of increasing cost of access for initial low use but decreasing costs per unit of data transmitted at full capacity):

The telex network
The telephone network
Direct (dedicated) data link

It should be pointed out however that a) not all database access services support telex connections and b) that reliability on international (direct dialling) telephone circuits is not always very good. Nonetheless a start can be made and valuable experience gained by the use of these means of communication.

INFORMATICS INFRASTRUCTURE: A centre wishing to have access to databases should be equipped with a terminal, which can vary widely as a function of the economic resources of the centre and of the service proposed there. The following examples of possible configurations range from the simplest to the most sophisticated:

- telex terminal
- teleprinter
- teleprinter with built-in acoustic coupler
- visual display unit (screen) with printer
- microcomputer

In order that this equipment (except telex) can be used for access via telephone circuits it will be necessary to use a modem (modulator-demodulator) which is a device which converts the (digital) signals coming from the terminal into a form suitable for transmission on the (analogue) telephone network. However terminals are increasingly available with a modem built in. Local Telecommmunication Administration regulations many effect the use of such terminals and the details of these regulations should be checked.

The table below illustrates the types of terminal and transit network which may serve for given speeds of data transmission.

TABLE I

TRANSMISSION MEDIA FOR ON-LINE INFORMATION RETRIEVAL

TRANSMISSION SPEED IN BAUD (1)	N° OF CHARACTERS/SEC. (2)	TRANSIT NETWORK	TYPE OF TERMINAL
50 baud	5 characters/sec.	telex network	telex
110 baud to 300 baud	10 characters/sec. to 30 characters/sec.	automatic telephone network; specialised data network.	VDU (visual display unit) terminal + printer; teleprinter; microcomputer.
1200 baud	120 characters/sec.	automatic telephone network; specialised data network	VDU terminal + printer; teleprinter; microcomputer
Higher speeds (2400, 4800 and 9600 baud)	240 characters/sec. 480 characters/sec. 960 characters/sec.	specialised data network; dedicated line (point-to-point)	VDU terminal + printer; microcomputer

Notes:

1: One baud is equivalent in general to one bit (or basic unit of information) per second.

2: In telex a character five bits long is employed while in other methods a character of eight bits is generally used; when two or three control bits per character are accounted for it is a good approximation to calculate the character rate by dividing the baud rate by ten.

4.1.2. THE ROLE OF TELECOMMUNICATIONS ADMINISTRATIONS OR TELEPHONE COMPANIES (TA or TCs) IN TELEDOCUMENTATION AND THEIR RELATIONS WITH TELEDOCUMENTATION CENTRES.

Once the importance of developing a national teledocumentation infrastructure has been demonstrated, a primary consideration as regards access to databases is clearly the role that the (state) telecommunication administrations or telephone companies (TA and TCs) can play. Establishing "good relations" from the outset between the TA/TCs and the teledocumentation centres is a very important factor in the development of teledocumentation activities.

TA/TCs should participate and co-operate from the outset in the teledocumentation development project possibly by providing subsidies and helping to promote and disseminate teledocumentation services; it was in the context of such participation by the national telephone company that the network of Spanish teledocumentation centres was designed and set up. A major reason for cooperation is that teledocumentation may be seen as a new telecommunication service by the TA/TCs; thus, there should be close links between the TA/TCs and the teledocumentation centres in the development and operation of the service. Such co-operation could be based on interinstitutional agreements in which the actions and responsibilities of each party are clearly set out.

Periodic meetings could also usefully be held between the teledocumentation centres and the TA/TCs in order to follow up actions already undertaken and to discuss future strategies.

In the early stages of development the TA/TCs could establish promotional tariffs to attract a larger number of users for the new service.

4.1.3. FAMILIARIZING TELEDOCUMENTATION PROMOTERS WITH TELEMATICS TECHNOLOGY

In the development phase of teledocumentation, service centre staff will have be initiated in the new field of activity and familiarize themselves with telematic technology. For this purpose, it is recommended that personnel of each new centre be trained in other teledocumentation centres that have been operating for several years in order to acquire the necessary know-how for setting up the new centre. Visits to other countries are particularly important, especially countries where new telematics technologies that may affect teledocumentation activities are being developed, since they can thus help to keep the new centre's manager abreast of recent trends and advances.

In short, those in charge of future teledocumentation centres should not confine their training to documentation tasks but also be open to any new developments in the field of teledocumentation and informatics which could have a subsequent effect on their work. An awareness of new ideas in other countries will help to disseminate and extend such ideas in the country so that these may be developed at a later stage.

During these training sessions, which may be conducted through bilateral agreements between the various agencies, teledocumentation promoters will be given courses and first hand experience of new developments. These training activities can be supported by funding from government agencies such as ministries or any other public entities involved in the area.

4.2. IDENTIFYING AND EVALUATING DISTRIBUTORS OF DATABASES AND DATABASES THEMSELVES IN TERMS OF NATIONAL DEVELOPMENT PRIORITIES.

After having decided to set up a teledocumentation service the information requirements at both the national and institutional levels should be studied and evaluated.

Nationally, it will be necessary to evaluate:

- the telecommunications infrastructure available in the country (see section 4.1.1.), since this may determine to a certain extent the countries to which access may be gained without heavy investment;
- which institution is the most suited for establishing the future teledocumentation centre;
- what possibilities exist to draw up co-operation agreements with countries already possessing such services;
- current demand for information, so as to identify which sectors are most in need in this area.

At the institutional level an evaluation will be made of:

- current information resources available to the institution;
- sectors generating greatest demand for information;
- available budgets for investment in information systems and their maintenance;
- the type of information services which would be consistent with the centre's mandate.

These factors can be important when it comes to assessing and selecting database distributors.

4.2.1. CATEGORISATION OF DATABASES

The International Organisation for Standardisation defines a database as "a set of data - part of the whole of another set of data and consisting of at least one file - that is sufficient for a given purpose or a given data processing system". Here we shall confine ourselves to "documentary" databases which facilitate the collection, management and dissemination of information intended for one or more professional user categories.

It is helpful to classify databases according to their structure although, in practice, one base may combine the characteristics of several types:

- Reference databases comprise bibliographical databases which describe documents and published works and referral databases which orient users towards specialised, non-bibliographical sources such as institutions, experts, research projects in progress and specialised hardware. Such databases do not supply the user directly with the information he needs: generally he has to order copies of the documents he selects or make contact himself with the sources identified.

- So-called "source" databases comprises textual databases and numerical and factual databases. The former supply the full text of the document(s) concerned (legislation, articles in the press or specialised magazines and even books or encyclopedic works). Apart from certain specific fields like law, such databases are still rare because of the storage and retrieval problems posed by the great quantity of information on file. Numerical and factual databases, contain individual data in the form of figures or facts.

Databases can also be classified from the viewpoint of multidisciplinary versus sectoral specialisation:

- Multidisciplinary: Generally these databases cover a certain type of source materials (theses, monographs, patents, research projects etc.) within a wide range of subjects;

- Subject: These databases concentrate on a particular domain (medicine, physics, chemistry etc.) or a particular topic (food science, textiles etc.). They generally cover all types of source documents in their particular field.

- Specialised: These databases cover a particular sub-sector of a topic such as cancer or electronic components. Equally they may cover a particular geographical region .

A database is created by the producer, in most cases an organisation (abstracting and indexing services, research institutions, trade associations, universities, government bodies, international organisations, etc.), specialising in the field(s) covered by the database.

The data in the base are disseminated by means of standard publications and on machine-readable media (generally magnetic tape or floppy disk), and are offered by wholesale distributors or hosts. The set of databases run by a distributor is sometimes called a "databank". Although the producer of a database may also act as the distributor this is rarely the case in practice.

4.2.2. REVIEW OF MAJOR DATABASE DISTRIBUTORS

A database distributor, often called a host, is a public agency or a private enterprise which by means of specific computer hardware and software, provides access to a certain number of databases (its own or those created by others). These host centres receive tapes from the database producers (see section 5) and load them into computer hardware (e.g. magnetic discs) which makes it possible to have direct access to the information. Through licensing contracts these centres are authorised by the producers to distribute their databases on-line to the public.

In order to become a user of the services offered by a distributor it is necessary to sign a service contract between the distributor and the user which stipulates a set of conditions for each party.

Normally the signing of such a contract does not imply any heavy investment, since payment is made on the basis of connect time at the prevailing hourly rate for each database used, although in certain cases the conclusion of a service contract requires payment of a stipulated advance payment or initiation fee which varies from one distributor to another; in other cases distributors do not require any advance payment, but use another method in which the user undertakes to use the service for a given number of hours each month. A set of discount rates is often applied to the charges as a function of volume of use particularly when a minimum amount of usage is agreed upon, or other factors such as use during peak periods.

In order to initiate the reader to host services, information is given below on a number of major distributors in the United States, Canada and Europe.

4.2.2.1. DISTRIBUTORS IN THE USA AND CANADA

In the United States, the number of large database distributors providing public services is lower per capita than in Europe, although this is not the case when it comes to the actual number of accessible databases. Currently, the main largest distributors in terms of databases offered are:

- DIALOG
- SDC/ORBIT

DIALOG a private corporation which is a subsidiary of Lockheed Corporation, has provided a service of on-line access to databases since 1972. It offers the largest number of databases amongst North American distributors; more than 250 in January 1985. This distributor is accessible internationally through the TYMNET, TELENET and UNINET data communication networks.

The DIALOG databases cover all areas of knowledge:

- There are more than 10 chemistry databases including bibliographic databases such as CHEMICAL ABSTRACTS SEARCH, factual databases such as CHEMNAME, and some which refer to a very specialised aspect of the subject (e.g. PAPERCHEM)

- 6 agriculture and nutrition databases including general ones like AGRICOLA or specific bases such as CRIS/USDA, which refers to research projects in progress in agriculture.

- 10 on medicine, pharmacy and biology

- 17 on energy and environment

- 15 on science and technology in general

- 7 on materials (metallurgy, textile industry, etc.)

- 10 on patents

- In economics and commerce the typology of DIALOG's databases is varied; bibliographic bases (14), numerical bases (12) and referral bases or directories (17). There are 5 databases referring to particular industrial sectors (coffee industry, pharmaceutical industry, insurance, etc.)

- The field of legislation is covered by approximately 12 databases dealing both with United States Congressional legislation and legislation on patents and intellectual property.

- 8 are databases covering items from newspapers, magazines or other "news" media in which international information is to be found on politics, economics, finance, etc.

- In addition to the commercial directories mentioned above, DIALOG has 7 directories on other subjects: directories of North American scientists, employment requests and offers, world personalities in politics, sport, etc.
- The field of social sciences and humanities is covered with 16 databases on history, philosophy, music, sociology, etc.
- In the field of education there are 7 specialised databases. Some are general like the ERIC database, and others deal with a particular aspect in education (e.g. EXCEPTIONAL CHILD EDUCATION RESOURCES).
- There are 7 databases containing information on books or publications by the US Government. This information may be of the commercial type, such as BOOKS IN PRINT, or bibliographical like LC MARC or REMARC which contain bibliographic information on the books in the Library of Congress.
- Lastly there is a group of general databases containing information on foundations and grants, theses, North American Government reports and conference papers. There are also training databases which have special tariffs so that they may be used for practice.

All databases referred to above are regularly updated to provide the most recent information possible.

DIALOG is accessible 22 hours a day for every working day and offers retrospective search services, selective dissemination of information and provision of original documents.

SYSTEM DEVELOPMENT CORPORATION (SDC)-ORBIT. The ORBIT system is an interactive information retrieval system designed and operated by the Search Service Division of System Development Corporation (SDC), a private company based in Santa Monica, California. SDC Search Service began commercial operations with the ORBIT system in January 1973 with three databases and at present offers approximately 80. The ORBIT databases, like those of DIALOG, are of two types: bibliographic and non-bibliographic.

The bibliographic databases provide information on all types of published literature; in these databases are included articles from journals, books, technical reports, theses, patents, newspapers, etc.

The non-bibliographic databases are typically directories with various types of information. For example a dictionary of codes used in the BIOSIS database, or a dictionary of chemical compositions, CHEMDE, based on the registry system.

ORBIT also has a considerable number of specialised databases in various areas of knowledge, some of which are exclusive to the system:

- on social sciences 13 databases concerning economics, politics, education and psychology
- on business economics and finance, 11 databases dealing with different subjects such as accountancy, the world of work, management and finance
- on legal and political information there are 8 databases
- on energy and environment, 14 relating both to particular types of energy such as APILIT, APIPAT and P/E NEWS from the American Petroleum Institute, or others relating to energy in general such as ENERGYLINE
- on chemistry 14 bibliographic and non-bibliographic databases
- on engineering and electronics, 10 databases
- covering specific industrial sectors such as the petroleum industry (3), forestry (1), the food industry (1), the paper industry (1), the pharmaceutical industry (1), the automobile industry (1), etc.
- on biology and agriculture, there are 9 databases
- on patents 3 databases.

The updating of all databases is usually monthly, although it varies from one database to another in terms of the information contained in them. The services offered by this system are the traditional retrospective search, selective dissemination of information and provision of original documents.

In addition to the two largest distributors there are other sizeable ones in The United States: BRS and Mead Data Central.

The first mentioned of these, (BRS), was set up in May 1976 to provide online access to major databases. BRS had noted the difference in cost between the online services offered by the public and private sectors and set up a series of very competitive tariffs with discounts up to a maximum of 60% as the number of hours of use of the system increased. This fact, combined with its contracts stipulating minimum usage, is the major difference between this company and other distributors.

As regards the available databases, BRS offers more than 70 in all areas of knowledge: science and technology, biomedical sciences as well as social sciences and humanities. The computer is located in New York and is accessible through the TELENET and TYMNET networks; services offered by BRS are traditional retrospective search and selective dissemination of information.

Mead Data Central is an example of a specialised information service provider which has expanded its services in recent years. Originally set up as a provider of information services for the legal community in the USA it has expanded its coverage to encompass legal material from other countries in particular the United Kingdom and France. In addition it has created a current affairs information service based on newspaper and magazine materials from a number of countries. These two services are marketed under the names LEXIS and NEXIS.

One significant feature of the Mead services is that the LEXIS databases were originally created to be used by a dedicated terminal, which was bought or leased by the user at the time of contract signature. This method of marketing was considered to be necessary to take account of the full text nature of the information i.e. that the legal community needed access to the full text of the law and not, as in the case of most other online services, to abstracts or other summarised information.

Development generally, especially in the area of upgraded speed of access, and the availability of the NEXIS service have made it possible for Mead to offer service to 'conventional' customers using their own terminals. In addition Mead has added the possibility of access via their special terminal to other services e.g. DIALOG.

In Canada there are also distributors of interest. The difference between them and other North American distributors lies mainly in the information they provide, since the great majority of their databases contain information on that country, and are created by Canadian organisations.

The two largest Canadian distributors are:

- I.P. Sharp

- Q.L. Systems

I.P. Sharp is a private Canadian company. This distributor's peculiarity is that all the databases offered are factual databases providing numerical data in the form of chronological series.The number of chronological series contained in a database varies from tens to millions, and the total of all such series in the databases is in excess of 25 million.

I.P. Sharp had more than 70 databases at the beginning of 1982 and this number has been growing rapidly. Databases are classified in five subject areas: aviation (12), economics (15), energy (14), finance (27), and actuarial (1). Some of the databases cover information on a particular country, whereas others provide information covering various countries; in this way it is possible to obtain in-depth data on a single country or to obtain an international overview.

The periodicity of the data varies from one database to another. Some series are daily, others, monthly, quarterly, half-yearly or yearly. Certain series go back to 1914, and others begin in the 1960's or 70s. Updating is performed either daily, monthly, quarterly or at longer intervals depending on the source and type of data. The sources of the material vary; the daily updated material is in most cases provided by I.P. Sharp itself, other material is received from other database producers.

I.P. Sharp offers three methods of data retrieval. Firstly it offers a data retrieval system for chronological series. It is also possible to use APL, the programming language, for manipulation and analysis of the data. The third method is graphical representation of data, i.e. the production of graphs of various types, which can be drawn up in accordance with the user's requirements, including sophisticated graphs produced by a graphic terminal.

I.P. Sharp is located in Toronto, Ontario, it also has offices in the United States and Europe. Its contractual arrangements are similar to those of other distributors involving the signature of a service contract which need not specify a minimum time of use for the system.

The other major Canadian distributor is QL Systems Limited, which began operations in this field in 1973, beginning with the QUIC/LAW project at Queens University. This project dealt with possible uses of the computer in parliamentary work and more particularly its application to legal research. Due to the expansion of the project, and its commercial use, the university sought a separate company outside the university environment to disseminate and develop the project. Thus QL Systems Limited was given the task of developing and maintaining the first commercial Canadian information retrieval system: QL/SEARCH.

At present QL/SEARCH provides online access to more than 60 databases concerning Canadian parliament and government affairs, legislation and other general subjects such as environment, energy, pollution, finance and mining. Some of the QL databases contain the complete text of publications, others contain abstracts or chapter headings.

In order to become a user of QL, as in the case of other distributors, a service contract is signed and payment is made according to the use made of the system. QL is accesible online through the Canadian telecommunications networks (DATAPAC, INFONET) and also through the U.S. networks, TELENET and TYMNET.

One other distributor CAN/OLE (Canadian Online Enquiry) is worthy of mention. This service,which opened in March 1974 is the result of an initiative of the Canada Institute of Scientific and Technical Information (CISTI). At the present time there are 90 CAN/OLE centres and 240 terminals connected to the host computer, located in Ottawa, through which access can be had to 4,500,000 bibliographic references.

Out of the eight databases in service, only three have been produced by CISTI, the other five being international databases (CHEMICAL ABSTRACTS SEARCH, COMPENDEX, NTIS, INSPEC and BIOSIS) also available through distributors in Europe and the USA . Of the databases produced by CISTI, the first is a union catalogue of scientific publications; the second a bibliographical repertory of the proceedings of scientific, technological and medical conferences; and the third has been prepared by the Information Exchange Centre (IEC) of CISTI and describes all research programmes subsidized by some 38 federal organisations.

4.2.2.2. EUROPEAN DISTRIBUTORS

The emergence of databases and database distributors in Europe is mainly due to the activities in the last 10 years of national authorities in the individual countries or through international institutions such as the European Economic Community (EEC), the European Space Agency (ESA) or the European Patent Office (EPO).

The most important single activity in Europe, which has served as a catalyst for a number of other developments has been the programme of the EEC designed to create a common market for scientific and technical information. This project, which culminated in the opening of the first multi-national European data communications network and associated online information services in February 1980, was the result of an intergovernment policy decision taken in 1971.

The EURONET data communications network, based on packet switching technology, was built and maintained by the TA's of the European Community under contract to the Commission of the EEC. The philosophy of this contract foresaw the progressive assimilation of the network into a series of national data communciation networks provided by the individual TA's and operated as public services. This process began almost as soon as EURONET was established and culminated in the technical termination of EURONET as a separate network on 31 December 1984. By this time all countries of the Community and the other associated countries (Switzerland, Sweden, Norway, Finland, Austria) had created national data communication networks interlinked to provide a service throughout Western Europe.

The other component of the EEC activities was the encouragement of the creation of information services to be available via EURONET and grouped under the general title of DIANE. These information services, many of which were government supported, remain independent and have complete autonomy of operation. DIANE includes all the major online distributors in Europe and has expanded from twelve in March 1980 to over fifty in late 1984. The number of databases on offer has consequently expanded from 70 in March 1980 to almost 500 by the end of 1984. It is significant that the largest expansion has taken place in the area of non-bibliographic databases from 10 in 1980 to over 200 in 1984.

There follows a brief examination of the activities of the larger countries in Europe in the field of information and documentation.

FRANCE. In France the creation of databases has been aided by substantial government support, particularly from the Mission Interministérielle de l'Information Scientifique et Technique (MIDIST - Interministerial Mission on Scientific and Technological Information) established in 1979 under the responsibility of the Secretary of State for Research. MIDIST, which acts as a co-ordinating body for policies and subsidies, succeeds the Bureau National de l'Information Scientifique et Technique (BNIST - National Scientific and Technological Information Bureau), a body created in 1977 under the responsibility of the Ministry of Industry. In France in 1984, there were nine major database distributors:

- ITBTP/CATED (Institut Technique du Batiment et des Travaux Publics - Technical Institute for Building and Public Works Centre d'Assistance Technique et de Documentation - Technical and Documentation Assistance Centre)

- CISI (Compagnie Internationale de Services en Informatique - International Computer Services Company)

- COB-BNDO (Bureau National des Données Océaniques - National Bureau for Oceanic data)

- ERGODATA (Laboratoire d'Anthropologie et d'Ecologie Humaine - Laboratory of Anthropology and Human Ecology)
- G.CAM (Groupement de la Caisse de Depôts - Association of Deposit Banks)
- GSI-ECO
- SLIGOS
- QUESTEL
- THERMODATA

The French "national" distributor is QUESTEL, which was launched in February 1978 at the initiative of the BNIST and the State Secretariat for Research, and in June 1979 was officially inaugurated with five databases; in December of the same year it already offered 15 databases and in 1983 it had 31. Télésystèmes, the operator of the QUESTEL service, is a service company specialising in tele-informatics; in addition to providing access to databases it carries out other activities in telecommunications and informatics.

QUESTEL is connected to the French telecommunications network TRANSPAC and is therefore accessible from all European countries and USA and is currently the French distributor with the greatest number and diversity of databases (covering: chemistry, medicine, biology, engineering, textiles, politics, jurisprudence, etc.).

Contractual arrangements with this distributor are similar to those described for others; one can conclude a contract without minimum stipulated use, with invoicing only for the time one is connected to the computer.

The services offered are traditional retrospective search and selective dissemination of information.

UNITED KINGDOM. The United Kingdom Parliament in 1972 passed the British Library Act setting up a National Library which took over the functions of the Office for Scientific and technical Information (OSTI) and the Advisory Committee for Scientific and Technical Information (ACSTI), both these bodies having been in operation since 1965 as co-ordinating organisations in the field of scientific and technological information.

In this country both the public and the private sectors have played an active part in the development of the national information industry, and by 1983 there were eight British distributors accessible through the Euronet-DIANE network:

- ADP
- BLAISE (British Library Automated Information Service)
- Datasolve
- Finsbury
- Pergamon Infoline
- SCICON Computer Services
- SIA Computer Services (a subsidiary of the French distributor CISI)
- UCSL (Unilever Computer Services Limited); now the UK subsidiary of EDS (Electronic Data Systems)

BLAISE is worthy of special mention amongst the above mentioned distributors. The British Library Automated Information Service began working in April 1977 as an online information retrieval service for the United Kingdom; with the development of telecommunications this service has been extended to other countries. This distributor is accessible through the PSS network, the national network run by British Telecom; worldwide access is ensured through International Packet Switched Service (IPSS).

BLAISE offers bibliographic databases on monographs and serial publications published in England and the United States and catalogued respectively by the British Library and the Library of Congress (UK MARC and LC MARC). In addition there is a service for locating and obtaining original documents held by the British Library Lending Division which is the largest lending library in Europe. BLAISE also offers, in association with other agencies, a library catalogue preparation service.

In order to be a BLAISE user it is necessary to deposit a prescribed amount as an annual subscription; this fee is, however, credited against connection time costs.

The BLAISE system is an example of fruitful participation of the state sector in the modernisation of traditional information activities.

FEDERAL REPUBLIC OF GERMANY. The policy in the Federal Republic of Germany is an example of major funding in the information field by the authorities (both the Federal Government and the Regional Governments). Since the mid seventies the federal budget has contained an allocation of several million German Marks for the information technologies, this sum being distributed via the Federal Ministry for Research and Technology.

By 1983 there were five major German distributors:

- DIMDI (Deutsches Institut für Medizinische Dokumentation und Information) (German Institute for Medical Documentation and Information)

- FIZ-TECHNIK (Fachinformationszentrum Technik) (Technical Information Centre)

- GID (Gesellschaft für Information und Dokumentation) (Society for Information and Documentation)

- INKA (Informationssystem Karlsruhe)

- Saarbrücker Zeitung

Among the German distributors, DIMDI is the National Centre for information and documentation in the medical sciences. It is sponsored by the Federal Government and is a non-profit-making organisation. It provides access to databases through retrospective search services and selective dissemination of information and also provides original documents. DIMDI offers MEDLINE, CHEMLINE, CANCERLINE, etc., as well as databases on agriculture, biology, food and social sciences; DIMDI works on the standard contracting pattern which involves neither down payment nor a minimum utilisation payment. It is accessible through DATEX-P which is the German public data network.

In the other countries taking part in Euronet-DIANE, the number of distributors is smaller than in Germany, England and France.

Italy offers five major distributors:

- CED (Centro Elettronico di Documentazione Giiuridica della Corte Suprema di Cassazione)

- CERVED (Centri Elettronici Reteconnessi Valutazione Elaborazione Dati SpA)

- CILEA (Consorzio Interuniversitario Lombardo per l'Elaborazione Automatica)

- CNUCE

- University of Rome (Centro de Calcolo Interfacolta)

Several of these distributors, and particularly CED cover the area of jurisprudence and legislation, which in Italy is the sector in which new databases access technologies are most used and have been most extensively applied.

Belgium has two major distributors:

- BELINDIS (Belgium Information Dissemination Service) which has databases on legislation, jurisprudence and energy

- CIGL (Centre d'Information Générale de Liège) whose main activity involves the development of factual databanks in the economic and financial sectors.

Switzerland has the DATASTAR distributor and Denmark DATACENTRALEN.

Finally, there is a group of distributors located in various countries of the Common Market, which have been set up through a joint effort by all countries, and particularly by the Commission of the European Communities. The databases they offer concern general information on European activities.

- ECHO (European Commission Host Organisation)

- EPO (European Patents Office)

- JRC (Joint Research Centre of the Commission of the European Communities)

The ECHO host provides an important service of user support for all participating European countries. It offers a 'database of databases', information on suitable terminals and a multilingual terminology database.

Finally, it is important to mention specifically the Italian-based European distributor ESA/IRS, a facility of the European Space Agency (ESA), which maintains a large number of databases (approximately 60) in all areas of knowledge, although more specifically in the area of science and technology. ESA gives access to all member countries of the Agency through the national centres in each country and has established online links with several developing countries.IRS is by far the biggest supplier in Europe and has, through its national centres, a well developed marketing structure. ESA/IRS has also recently started to offer access, via its computer, to other services, for example Finsbury in UK.

4.3. DIFFICULTIES INVOLVED IN EVALUATING DATABASES

As may be seen from the preceding section, the number of distributors and databases around the world is steadily increasing, and is in fact reaching proportions which make it very difficult to know about all available resources. This also means that both teledocumentation centres and end-users are finding it increasingly difficult to evaluate the utility of the databases in a given area, particularly if one considers that a database must be used several times before it can be properly evaluated.

This is a major new problem , apparently due to an increasingly heavy demand for information which leads to the creation of new search services as well as to the growing general awareness in all countries of the value of information in the research and decision-making processes. The importance of this problem of identifying and assessing information sources is reflected in the fact that databases on databases have begun to appear, often created by the distributors, which make it possible to locate the databases most likely to yield the desired information.

4.3.1. LACK OF SUFFICIENT TECHNICAL INFORMATION ON DATABASES

One of the difficulties facing the specialist in a teledocumentation centre is the lack of information on new databases.

Information on databases is needed at two levels:

- Information about the existence of new databases.

- Information about their technical content

Obtaining the first type of informaiton poses much less difficulty than the second because when a database is put in service, the producer normally informs the user of its existence through the organisation which distributes it. Although this is possibly the most appropriate channel, other methods are also important, such as, for example, advertisements or even articles in specialised journals. Finally, many directories of databases are regularly updated, in hard-copy and/or machine-readable form.

Concerning technical information on databases, it should be stressed that the directories and handbooks that are currently published on databases do not give all the necessary information for their proper and efficient use. One example of this is the fact that they are mostly structured in such a way as to reflect the service structure of the distributor offering them rather than on the content and structure of the actual databases. The Commission of the European Communities, through the ECHO service, has offered the DIANEGUIDE database of databases to help solve this problem; DIANEGUIDE contains details of centent, coverage, rate of update etc.

4.3.2. DISPERSION AND INCONSISTENCY IN INFORMATION SERVICES

One of the biggest difficulties facing users of teledocumentation services is, as mentioned above, the large number of potential sources of information and the large number of database distributors.

In addition to this problem there are the differences between the information retrieval systems used by the different distributors. This variety of interrogation languages (command languages) causes a certain reluctance on the part of users to widen the range of services accessed.

One solution to this problem which has been used in EURONET-DIANE is the development of the Common Command Language (CCL). The CCL has distilled the fundamental search and display commands of a variety of systems into a basic set which enables a user to move from service to service without learning a new technique for each one. The availability of microcomputers to inter-convert command languages at the user end has also helped to solve this problem somewhat but, in contrast to adoption of the CCL by distributors, this approach requires the availability of certain specialists in software development to cope with access to a wide variety of distributors.

5. STRUCTURE OF THE TELEDOCUMENTATION SECTOR

The application of computing and telecommunication technologies to scientific and technological information and documentation has had the effect of providing a new stimulus in this field of activity. In the more advanced countries, over the last few years, there has been a emergence - either through the dynamism of private initiative or through the incentives of governments - of a new sector which, because it is structured according to the classical model of production/consumption, is called "database industry" or "knowledge industry". This is so recent a phenomenon that the structure and mechanisms of this new sector are not yet fully developed in many cases.

Nonetheless a number of catagories of participants can be identified which constitute the new field of activity. There can be broadly defined as follows:

- database producers
- database distributors
- data network providers
- information Agents

Each of these will be analysed in turn in the following section.

5.1. THE PARTICIPANTS

The first task in the production/consumption chain for online information is in the hands of the database producers, whose activity is focused on collecting or elaborating information or data and periodically updating it.

The original database creators were the major abstracting and indexing services (mostly in science and technology) who, in the mid-sixties turned to computerization to speed up the process of production. This led to the availability of a 'computer readable' equivalent of the printed volumes.

Subsequently, other institutions - public or private - involved in research and training or professional associations, publishing firms, etc., undertook computerisation of their data archives or information sources to facilitate information retrieval. Others are private institutions that have considered it to be economically worthwhile to set up and market databases either from their own resources or by collection of information produced elsewhere. In all cases the result is the creation of databases, in any of their forms - bibliographic or factual or textual.

In order to convert documentary files or manual data archives into databases, these institutions usually use their own computing resources, or a computer bureau service or consultancy firm, which acts as a database developer.

In nearly all cases, the producer of the databases keeps ownership of the information, even when the producer does not supply the information retrieval service from the database.

The second catagory is made up of database sellers or distributors, whose task it is to provide access to databases for the largest number of users through terminals and telecommunications facilities. In some cases the database producer considers it is technically and financially viable to be his own distributor. In others he uses the services of specialised firms, usually referred to as database hosts or online information vendors; through licensing contracts, distributors obtain authorisation from producers to exploit their databases.

The third catagory in the chain is that of the data networks, which are either dedicated to this function, or are networks used for other tasks as well as for data communication, such as the telex network and the automatic telephone network.

With the support of these networks, the telecommunications administrations or public telecommunications corporations provide a public data communication service at the national and international level. As a result, the telecommunications networks play the role of an artery, providing access of users to database distributors (and thus to databases), wherever either party may be geographically located.

The component in the chain closest to the information consumer is the information agent (or intermediary), who provides a service for information seekers by searching the databases of the distributors. This activity is generally carried out by information and documentation centres in public and private firms and institutions, although recently individual specialised professionals in certain fields such as, jurisprudence, environment, energy, etc. have set up as an information agents.

Finally, but by no means the least important, is the individual information seeker who performs searches. Because of the relative complexity of using the services of many distributors, the individual searcher searching exclusively on his or her own behalf has tended to be a rather small part of the development of the industry. However, with the wider availability of computing equipment, this category has become more numerous and consequently both the database producers and the distributors have developed their services to be more appealing to this type of client.

5.2 DEVELOPMENT OF TELEDOCUMENTATION AND ITS INTERDEPENDENCE WITH OTHER SECTORS OF THE NATIONAL INFORMATION INDUSTRY

All sectors of the database industry mentioned above are closely interconnected. Each of the elements is a vital one within the chain of production/consumption of online information.

A good illustration of this interdependence is shown by the fact that, in the countries where modern data communication networks have been created, the volume of activity in teledocumentation has arisen rapidly.

The emergence of online services and products on a nation-wide scale helps to direct a high percentage of demand for information to a country's own resources, thus avoiding "information drain". The net effect is the development of a national database industry.

6. MANAGEMENT BODY OF THE PROMOTION GROUP

Once the group of promotion institutions has been formed in the national teledocumentation network, it will be necessary to establish a management body responsible for implementing the actions and policies set out by the group. This body will have a manager who will be responsible, after being delegated the relevent authority by the governing body, for administration and implementation of agreements and guidelines adopted by the governing body and any tasks of organisation and supervision as may be required for the best attainment of the group's objectives.

It will be necessary to set out and define:

- the functions of the management body

- its plan of action

- its structure

This will be the task of all participating member institutions.

6.1. FUNCTIONS OF THE MANAGEMENT BODY

The management body, or administration of the national network of teledocumentation centres, is to be thought of as an executive body for the Promotion Group or administrative committee of the network, which is, in turn, the body charged with representing common interests of the entire group.

As a result, and bearing in the mind the network's objectives, the functions of the management body may be as follows:

- Planning, implementation and/or consultation with other bodies regarding programmes for dissemination, training, research, development of infrastructure and marketing which are required for the attainment of the objectives set out by the network.

- Developing and promoting the appropriate supervisory arrangements for commercial administration, provision of services, quality assurance, training and research in each of the centres of the network, so as to economise and optimise the provision of resources (economic, material and human).

- Administering the funds from the resources available to the network (from member institutions as well as other funds brought in by the provision of services or grants), to support dissemination, training, research and development of infrastructure.

- Development of an appropriate information system to enable supervision the above-mentioned actions by the network management committee.

6.1.1. PLAN OF ACTION

A plan of action should be drawn up for the entire network, in which the management body, as mentioned in subparagraph 6.1. will be in charge of planning the joint actions of the member institutions in the network; this body will also be in charge of supervising the actions.

In this sub-section, the following aspects of the plan of action are considered:

- objective

- general criteria of the action programme

- role of the management body and of each of the network centres in the programme.

In relation to the plan's objectives, all necessary actions for the achievement of the network objectives should be considered. For instance:

- Promotion of the use of teledocumentation services at the national level, by bringing action to bear on the various sectors of the potential market of users, be they individuals or institutions (universities, firms, professional colleges, libraries, etc.) through the relevant communication media.

- Information and training for users (scientists, businessmen, planners, civil servants, etc.) of teledocumentation, either by separate action or jointly with other institutions involved (for example, universities).

- Training of database experts and intermediaries, to facilitate the provision of specialised staff in the new centres that are set up. Also, advanced refresher training for existing and recently qualified experts through seminars and courses on existing databases, retrieval techniques, etc.

- Execution of research, development and studies geared to:

  1) optimising access to primary documents

  2) improving the quality of information retrieval services

  3) setting up a network infrastructure interlinking all centres

  4) creating new markets and developing new marketing techniques.

- Consolidation of the network's structure (reputation, organisation, infrastructure etc.). Providing technical facilities for internal and external interconnection (telex, intercentre links via terminal, etc.) as well as for supervision (management information system, etc.).

- Development of the information services provided by the network, particularly by promoting the incorporation of new databases (both bibliographic and factual).

- Marketing teledocumentation services, either through consultancy contracts or through individual promotional action.

- Actions of identification and stimulation of initiatives in the creation of bibliographic and factual databases.

- Obtaining information on similar networks in other countries, as well as more generally on innovations in the world information industry. For this purpose, planning for participation in international congresses, seminars, etc. is necessary.

- Analysis of short-term funding problems concerning the services of the network centres and recommending solutions, as the creation of new services, the opening of markets or any other appropriate tariff or marketing policies.

It will be necessary to set out general criteria for action within the plan and the role to be assumed in the programme by the management group and each of the network centres. Other sections of this document outline specific actions on training (chapter 7), dissemination and marketing (chapter 8), infrastructure building (chapters 9 and 10) and research (chapter 11) that are relevant to the attainment of the network's objectives. It is to be noted that the performance of these actions is the responsibility of both the management body and the network centres (in as far as these actions are consistent with the specific objectives and policies of each centre).

The management body should assume certain responsibilities on behalf of the centres, particularly as regards the attainment of promotion and dissemination targets, training of analyst experts, achievement of experimental research and development plans, development of the range of services and the analysis and solution of short-term self-funding problems of the teledocumentation services. As a result, the management body may supplement the activity of the centres in the following activity areas:

- information and training for users
- marketing of teledocumentation services
- identification, stimulation and advising on national database creation initiatives
- identification of work carried out in this field in other countries.

6.1.2. STRUCTURE OF THE MANAGEMENT BODY

In order to achieve these objectives and carry out the functions assigned to it, the management body should be provided with a technical and administrative structure based on principles of economy and optimisation of staff productivity. A staffing structure is proposed in Table 2, which specifies:
1) the category of person to be hired, 2) the functions to be discharged and 3) the type of contract. Of course the yearly gross expenditure for personnel should be borne in mind to ensure that staff costs do not impose an excessive burden on the available annual budget. In this connection, it may be possible to consider temporary transfer of staff from participating institutions in the network or the possibility of using students with appropriate qualifications and experience for this work.

TABLE 2

HUMAN RESOURCES FOR THE
MANAGEMENT BODY

POST	FUNCTION	TYPE OF CONTRACT
1 General Secretary	Director	Full-time
1 Head of group	Research and substantive activities	Full-time
1 Specialist	Research and substantive activities	Full-time
1 Management secretary	General secretarial	Full-time
1 Administrative assistant and accountancy	General administration	Full-time
1 Administrative assistant	Secretarial work	Full-time
1 Administrative assistant	Secretarial work	Full-time

The actions of the management body can be looked at in two ways: on the one hand it will carry out promotion activities for the network (for database creators or network centres for example) which are not remunerated, and on the other hand it will carry out revenue-generating activities involving the provision of consultancy, information marketing services, training of database access specialists, etc. These latter activities could provide up to 60 to 70% of the annual budget of the management body, with the remaining 30 to 40% being obtained by subsidies from the participating centres and other sources. However, this breakdown of income will take some time to achieve so the subsidy element may have to be higher in the earlier years.

As regards the network centres, the cost of setting them up and providing their running expenses should normally be financed fully by their parent organisations.

6.2. SUPERVISION AND MONITORING OF INSTITUTIONS PARTICIPATING IN THE NATIONAL TELEDOCUMENTATION NETWORK

Below, reference is made to some of the arrangements for the supervision and monitoring of institutions participating in the national teledocumentaiton network, based on the experience of the INCA Network (Spanish network of teledocumentation centres), which since it has been in operation has periodically been drawing up reports in which the activities carried out by each of the centres of the network are analysed. The data appearing in these reports have contributed to greater knwoledge of the development of teledocumentaiton in Spain over the last five years.

6.2.1. NEED FOR A MANAGEMENT REPORT ON THE DEVELOPMENT OF THE TELEDOCUMENTATION SECTOR

Whenever a new service or product is introduced into society it is appropriate to have data reflecting how this new service or product is accepted by the users. Teledocumentation is no exception, and thus, from the time of its initiation it is necessary to obtain data concerning the activities and services of the new teledocumentation centres.

In order to be able to have these data available, there is a need for a co-ordinating centre capable of gathering data from all centres in the network. This centre should logically be the one reponsible for the promotion and dissemination of the new services, i.e. the management body for the Promotion Group. It should draw up reports containing aggregate data for all teledocumentation centres in the country. Some of this data (e.g. on the total number of hours of inquiry into databases) could be obtained through the state telecommunication authority or telephone companies if, as recommended in sub-section 4.1.2., relations with these bodies are close. However, since data on promotional and training activities are included in such aggregated data it will still be necessary to have direct contact with each of the teledocumentation centres in the country. The existence of a co-ordinating centre considerably facilitates obtaining such data.

The primary aim of the management report is to provide data on the teledocumentation sector as an "information tool" for monitoring and evaluating actions (activities and services) carried out at the national and institutional level by the teledocumentation centres. In order to achieve this objective the document should:

- contain information from all teledocumentation centres functioning in the country;
- provide a faithful record of all activities and services carried out in the teledocumentation centres, and
- have a stipulated periodicity.

It should be stressed to all entities taking part in the preparation of the report how important it is both at the national and institutional levels. Once the document has been drawn up, it will be very useful instrument for the management of the teledocumentation netwotk, and may be submitted to the authorities of the respective institutions and to the governing body of the Promotion Group, so that these bodies are kept informed of the activities carried out over a given period of time.

6.2.2.1. PREPARATION OF MANAGEMENT REPORTS

In order to draw up an accurate and useful management report, each institution or entity taking part in its preparation, should have a very clear idea of its participation and obligations. Therefore the responsibilities of each centre should be clearly defined and understood.

The responsibilities of the teledocumentation centres involve compliance with the method of filling in the reporting form or questionnaire and its submission by the date stipulated.

Since 1978, the year when the Spanish network of teledocumentation centres was set up, a series of meetings have been held between all institutions in the network to co-ordinate activities carried out by these institutions. At these meetings, one of the documents which most clearly presents the activities of the teledocumentation centres has been the management report; over the years the models of the management report form used have varied, and the form has now been successfully standardised.

The reports cover:

- the volume of activities in the period (searches, documents distributed etc.)
- promotion activities carried out
- training activities carried out
- plans for the next period.

There are a certain characteristics which the reporting form should have which may in turn affect the form of the report itself:

- it should be sufficiently clear for it to be completed easily and quickly;
- it should not be too extensive so that it does not take too much time to fill in;
- it should not depend for completion on the receipt of other documents (such as for example invoices from distributors), which could delay its preparation.

These characteristics will make it easier to prepare and complete the report both by the teledocumentation centre manager and by the national co-ordinating centre.

6.2.2 CIRCULATION OF MANAGEMENT REPORTS

The circulation of management reports, as already noted, is the responsibility of the Promotion Group management body which will circulate such reports in accordance with the guidelines set out by the governing body. It is recommended that each time a management report is produced, each centre that supplied data concerning its activity should receive a copy. The fact of seeing one's work reported in the document has a favourable impact.

Similarly, it should be circulated to all members of the Promotion Group and the staff of the management body.

Before circulating the document, authorisation will have to be obtained from each centre providing data, although where aggregated data (data covering an entire category of centre or the whole country) and not separate data for each centre are concerned there should be no restrictions when it comes to circulation; This problem can be overcome by asking on the reporting form for permission to publish the data requested.

7. TRAINING OF SPECIALISTS IN ACCESS TO DATABASES

The training of the specialists who are to run the teledocumentation centres is one of the most important aspects in the planning and setting up of the centres and must therefore be dealt with extremely carefully, since to a large extent the effectiveness of the services to be provided by the centre will depend upon this.

7.1. SELECTION OF SEARCH SPECIALISTS

One of the key links of a teledocumentation service is the specialist accessing the on-line databases, since this specialist usually provides the interface through which the information must pass before reaching the user and consequently is responsible for the quality and relevance of such information to the user's request. Similarly, the analyst is charged with evaluating and promoting the use of the system and, through interviewing, must mould the client's information requirements into a form suitable for obtaining the best results.

7.1.1 ACADEMIC QUALIFICATION OF CANDIDATES

Although it is impracticable to establish fixed universal standards, the most advisable training for information work in a teledocumentation centre will be:

- Subject specialist, having a higher education degree in one of the subject areas on which the services and information activities of the centre will focus. If the centre adopts a policy of multidisciplinary information, the experience of the Spanish network of teledocumentation centres shows that the majority of information retrieval services offered by teledocumentation centres involve the fields of biomedical sciences, chemistry, economics and engineering in all its forms. Given the special terminology employed in these fields it is particularly recommended that persons with qualifications in medicine, chemistry, economics or engineering be sought, although in general any technical career provides sufficient training to perform the work;

- Documentalists, generally holding a first or higher university degree in information science (the latter degree often a higher education qualification in social sciences or humanities), and having if possible extensive experience in the field of information retrieval.

Although either of the above two possibilities is appropriate for the exercise of functions of an information intermediary, the Spanish experience indicates that it is generally preferable (and practically essential if factual databases are to be effectively exploited) to opt for the first of these. Knowledge of informatics and programming is, of course, also helpful.

7.1.2. PSYCHOLOGICAL QUALITIES

The candidate should posess basic psychological qualities which will contribute most effectively to the successful performance of the tasks. These could be evaluated by a test (for example, the Rorschach test), by personal interview or any of the techniques employed generally by the personnel department in an institution or firm.

These qualities should be evaluated in the context of the three fundamental fields of work of the specialist:

- promotion and dissemination of the service

- organisation and management of the centre

- access to databases and other sources of information.

7.1.2.1. DESIRABLE QUALITIES FOR CONTACT WITH TELEDOCUMENTATION SERVICE USERS

Especially to be recommended are:

- friendliness

- an outward-looking personality

- ease of communication

- capacity for persuasion

- ability to instil confidence in the user

- readiness to question the client as long as is necessary so as to achieve a good understanding of the information need.

7.1.2.2. DESIRABLE QUALITIES FOR THE ORGANISATION AND PROMOTION OF TELEDOCUMENTATION SYSTEMS

In this area of activity the following characteristics are to be valued:

- creativity

- work capacity

- organisational capacity

- teaching experience

- writing abilities

7.1.2.3. DESIRABLE QUALITIES FOR THE PROVISION OF TELEDOCUMENTATION SERVICES

In this area, the following psychological qualities may be considered the mostappropriate:

- capacity for logical interrelation of concepts
- capacity for analysis and synthesis
- decision-making ability
- intuitiveness
- wide general knowledge
- self-confidence
- indexing experience

7.1.3. OTHER IMPORTANT FACTORS

There are additional factors which should also be taken into account when selecting the specialist. These are partially detailed below.

7.1.3.1. LANGUAGE

Most on-line databases are in English and it is therefore absolutely vital to have a good knowledge of this language, in both spoken and written form, so as so to be able to find the descriptors or key words necessary for the construction of the search profile, to tell whether the information is relevant or not as it appears on the terminal, to attend training courses by the producers and distributors of databases, to read the information periodically sent out by them, etc.

An acquaintance with other languages such as French and German may also be recommended since more and more European distributors are using these languages.

7.1.3.2. KEYBOARD SKILLS

Another important factor to be taken into account is the ability to type and the candidate's speed and skill in typing, since keyboard speed helps to keep down access time and therefore reduces cost.

7.1.3.3. TECHNICAL

Finally, it is to be stressed that if the candidate is manually skilful, he or she will be able to solve any small technical problems and operational difficulties that may occur concerning the equipment.

7.2. TRAINING OF SEARCH SPECIALISTS

The breadth and depth of knowledge acquired in the period of training of a teledocumentation specialist will depend heavily on the body responsible for providing such training, since course design, length and content varies considerably between courses organised by database distributors or producers on the one hand, and by experienced teledocumentation centres on the other. A study of basic training, continuing education and exchange of experience should be developed at the national level, making use of all available training resources.

7.2.1. ASSESSMENT OF SPECIALIST TRAINING COURSES

If, after analysing the centre's information requirements and the on-line information sources most suitable for it, it is decided to access various database distributors, it is more than likely that they will all be operating different software systems, in which case it will be necessary to learn different information retrieval languages. Although all systems provide handbooks and user guides which explain methods of interrogation, it should also be said that these are not always as clear and helpful as they should be. Furthermore, the correct handling of instructions and commands in no way implies that the appropriate retrieval techniques have been learnt, since these must also take account of the inner structure of a given database.

It should also be noted that almost all existing handbooks are exclusively given over to setting out and explaining the product but do not devote even a single chapter to a general overview of the online information industry for the new user (origins, development and current state of the art), or the telecommunications medium on which it is based, or existing equipment on the market, or basic notions about documentation or management and organisation of a teledocumentation centre; such chapters are almost as important as the learning of the system language itself.

For all the above reasons, one of the most appreciated services from the point of view of the user and which is offered by almost all database distributors, is the provision of training courses. The content, duration and cost of these, however, vary considerably.

The most frequent form consists of introductory training on the host system, i.e. on the most important databases and the information retrieval software. They usually last two days (from six to eight hours each) divided into lectures and practical sessions at the terminal.

A second type of course, which may be offered by database producers as well as distributors, focuses on in-depth study of a specific database. In these courses an analysis is made of the method of information selection, indexing and introduction of documents into the database, as well as of the special information retrieval techniques designed for it, regardless of the retrieval software employed. These courses also devote two to three hours to online practice.

Finally, there are courses which present and analyse all databases available in a given sector (biomedicine, engineering, economics, social sciences, etc.).

As a general critisism of this type of course when organised either by the distributor or by the actual creator of the database, it should be noted that the organisors almost inevitably adopt a commercial and marketing tone by attempting to promote their own products as being the most suitable. also, experience indicates that the duration of any one of these courses (8 to 16 hours) is not sufficient to attain the degree of knowledge necessary to be able to perform searches at the highest efficiency. This efficiency is gained through a combination of course attendance and practical working experience.

An alternative approach, which avoids most of the above problems but requires considerably more effort at the national level, involves the organisation of an introductory course by the management body. Of the national teledocumentation network. A detailed description of such a course for teledocumentation specialists is presented in Annex II.

7.2.2. CONTINUING EDUCATION OF SPECIALISTS

The training of an analyst should not be considered only as a requirement prior to installing and starting up a centre, but also as a dynamic and continuing process due to the constant evolution of the "information industry" (equipment, languages, databases, new applications and products). For this reason, the mistake should not be made of considering that a course, however extensive it may be, could replace the analyst's personal work (reading and keeping up to date) which without any doubt is one of the keys to success. Another very important aspect of continuing education, treated in chapter 9 is the organisation of, and participation in, meetings for exchange of experience among teledocumentation specialists.

Even if as indicated in sub-section 7.2.1., the courses provided by distributors and creators prove insufficient in themselves for providing the specialist with the necessary background for helping to start up and efficiently operate a teledocumentation centre, they should not be rejected as they provide a good way of carrying out a programme of continuing education which is essential, since the producer or distributor is unquestionably the organisation which knows its product best and therefore also knows its capabilities and limitations. These courses, which have variable lengths, are designed for participants with various levels of experience and offer an excellent opportunity to obtain either in depth knowledge of the service or files or background knowledge, without requiring long periods away from the centre. In many instances they are provided in a number of centres so that travelling time and expense can be minimised by choice of the closest site.

7.3. TRAINING OF MANAGERS

It is also important to take account of the training of teledocumentation managers who in many cases are not acquainted with the world of computerised documentation. The objectives of courses intended for senior management are very different from those for the training of the search specialist, and as such should be designed exclusively for this category of personnel.

Database distributors and producers do not provide this type of course, and there are only very few highly specialised institutions that are capable of providing such training.

The syllabus of one of these courses, as provided by FUINCA, is given in Annex III.

8. DISSEMINATION AND MARKETING OF TELEDOCUMENTATION SERVICES

8.1. DEFINITION OF A NATIONAL MARKETING POLICY

Each and every one of the policies discussed in this section converge into one idea: to initiate an integrated and consistent set of marketing actions based on the requirements of the potential consumers of services from the country's teledocumentation centres, and designed to satisfy these consumers, in the belief that a satisfied consumer is the key to the lasting success for the network.

In the following sub-sections the general marketing policy of a network of teledocumentation centres is outlined, and more detailed analyses are made of the following specific marketing policies: user, product, distribution, tariff and service.

8.1.1. GENERAL NATIONAL PROMOTIONAL AND MARKETING POLICIES

The general policy objective must be to achieve the maximum use of the information services by the greatest possible number of users. This general objective can be broken down into a number of sub-objectives as follows:

- to build up a comprehensive analysis of user requirements;
- to achieve the optimum development of services to satisfy these requirements;
- to create a dynamic image for the services.

8.1.1.1 TYPOLOGY OF END USERS

Two types of end users should be distinguished:

- institutional users
- individuals

The fundamental difference between these two groups, in marketing terms, is that the institutional user sector needs in the first instance to be made aware of the general range of services offered by the network of teledocumentation centres while the individual user needs to be acquainted at an early stage with the specific information services that may interest him.

The marketing policy towards institutional users needs to be based upon a clear understanding of the following:

- the present status of the institution in terms of information use;
- the subject area(s) covered by the institution;
- the number and level of information personnel available in the institution.

This is because, in most cases, the institution will have the role of intermediary between the teledocumentation services and its own end users.

For the individual user the marketing policy needs to take account of the range and type of information requirements, the ability of the user to perform individual searches, the potential for access to documents identified in searches (through major libraries, database distributors, etc.) and the equipment available to the user.

8.1.2 PRODUCT POLICY

Product policy seeks to:

- select from the range of possible information services (standardised profiles, retrospective searches, selective dissemination of information, etc.) the most relevant for network users and those which could be set up with sufficient effectiveness and profitability;
- design these services, setting out the quality standards and their availability.

Recommendations on these two aspects are given below, based on the experience of the Spanish network of teledocumentation centres as an example.

8.1.2.1 RANGE OF PRODUCTS OR SERVICES OFFERED BY THE NETWORK CENTRES

There are two general policy considerations in this area:

- to extend insofar as possible the range of information resources offered to the users;
- to integrate vertically, i.e. "downstream", the range of information services of the network.

Within this general policy context the following specific aspects have to be considered:

- striking a balance between extension of bibliographic databases and that of factual or textual databases;
- achieving a balance between broad subject areas covered and between particular disciplines in any given area.

Listings received as a result of searches in bibliographic databases are in many cases a "raw" product which may be of little practical value. Therefore it is necessary to "add value" by, for example, indicating where documents may be obtained etc. This is the principle aim of "downstream" integration (see also chapter 11).

8.1.2.2. QUALITY OF PRODUCTS OR SERVICES OFFERED BY THE NETWORK

The general policy of the centres should be to supervise the quality of the information services provided to clients. The relevant arrangements should cover the following aspects:

- presentation of the information
- "packaging" of the information (user profiles, explanatory letters, etc.)
- relevance of the information

and, in general, should correct any problem which could lead to a rejection by clients of the services provided, such as:

- excessive and inexplicable delays in the provision of services
- a low ratio of relevant items in response to the enquiry
- lack of assistance in providing original documents.

8.1.3. DISTRIBUTION POLICY

In this sub-section the following policies are considered:

- service extension in terms of volume
- securing the market of potential users
- action on sales agents or intermediaries
- territorial expansion of the network
- innovation in services offered.

A possible range of network services, outlined in Table 3, is used below as an example in describing the above policies in further detail.

TABLE 3

RANGE OF SERVICES TO BE PROVIDED BY THE NETWORK OF TELEDOCUMENTATION CENTRES

Basic service	Improved service objective
1. Provides customers with references to documents but not the documents themselves (i.e. raw bibliographic information) - periodical updating (selective dissemination of information - SDI) - retrospective searches (RS)	To provide users with the facilities to locate and obtain primary documents
2. Supplies the clients with document references with a certain added value (sorting, elimination of some non-relevant references or addition of data), as a result of rather basic analysis work (i.e. semi-elaborated information) - classified RS or SDI (sorted by subject area, author, etc.) - RS or SDI cleared of noise and classified - RS or SDI mixed (with bibliographical references and numerical data)	To provide users with individualised advice to facilitate location and obtaining primary documents
3. Provides the clients with photocopies or microfiches of original documents, and either referral to translators or the translations themselves - photocopies or microfiches of primary documents - translation of documents primary documents	To provide users with the primary documents selected through analysis of the information obtained through RS or SDI

TABLE 3 (Cont.)

4. Provides clients with elaborated information which is as complete, concise and homogeneous as possible, through the work of a subject expert	To providee users with individualised synoptical documents (critical reviews) responding directly to their own information requirements
- customised RS or SDI, classified, analysed and annotated	
5. Advisory and consultancy service	To provide users organisations or institutions with all the support required for setting up a teledocumentation unit.

8.1.3.1. INCREASING POTENTIAL CUSTOMERS AND MARKET OPPORTUNITIES

The policy of the network should be to extend the number of sectors to which it can offer teledocumentation services by conducting continuing studies of database coverage. The network should focus its offers of services upon user sectors which have not been the object of intense promotional campaigns, because it has been difficult to define user needs or to set out the most appropriate marketing argument for the sector, or again because the appropriate information resources to serve a particular sector are unknown or unavailble.

8.1.3.2. SECURING THE MARKET OF POTENTIAL USERS

In order to convert a potential client into an actual client it is necessary to create the means by which to inform the person of the network's information services and products. In Table 3 (above) it is to be noted that the various services proposed are highly interrelated and designed as a chain of support to the customer with the intention of meeting a full range of requirements. This approach can be reinforced by adopting an integrated and comprehensive promotional policy covering the entire range of information services in the network.

It will be the responsibility of the information specialists of the centres and of their management to offer the client this idea of a "tailored service package". This attitude will help to break pre-conceived notions of customers in regard to the potential of teledocumentation services.

8.1.3.3. ACTION RELATING TO POTENTIAL SALES AGENTS OR INTERMEDIARIES

One of the key factors in the development of teledocumentation is the emergence of sales agents or intermediaries for network services. Two types of action can be undertaken in this context

- Promotion of "information brokers"

  Individual persons who are experts in a given subject or area of science, and who are familiar with databases should be encouraged to set up as "information brokers" (independant intermediaries able to channel the network's services to end-users).

- Promotion of institutional liaison

  Encouragement should be given to promotion of the network services by intermediary organisations, such as for example, professional associations, trade associations, chambers of commerce, etc.

8.1.3.4. EXTENSION OF NETWORK COVERAGE THROUGH SPECIALISATION

The establishment and development of a network of specialised teledocumentation service centres with country-wide coverage can greatly improve nation-wide activities in this field.

Each of the network centres will perform two functions:

i) serve as a point of access to the network and as such to all the other centres as well as to the general network and user training services, etc., provided in its capacity as an association of teledocumentation centres;

ii) cooperate with the network by providing its expertise and experience in a particular area (or areas) of knowledge.

The organisation of the network should be consistent with the policies detailed above, hence the need for two types of centre:

a) sectoral centres, restricting their activities to a particular area of knowledge, small or large, without in principle setting out any precise territorial demarkation;

b) regional centres which, although they may concentrate on special subject areas, primarily act as co-ordinating bodies for the provision of teledocumentation services in specific regions.

Subject specialisation in regional centres should be so arranged as to attain a degree of complementary with the subject areas covered by existing sectoral centres, and also to optimise cost. The purpose of such specialisation and coordination is to optimally disseminate teledocumentation services throughout the country, taking full account of criteria of market segmentation (coverage of different fields) and of the distribution of actual and potential users.

8.1.3.5. INNOVATION IN SERVICES

The general distribution policy should foresee the offering of services which are geared to change dynamically in the medium term, in order to facilitate:

- provision of a complete range of information services
- responsiveness to changes in user demand, new techniques and equipment etc.

8.1.4. TARIFF POLICY

Although tariff policy may vary widely as a function of the local situation and objectives, and may depend on wider (government) policy with respect to whether the services of the teledocumentation network should be provided as a subsidised facility, be expected to recover its cost or be profit-earning, the following general policy features are recommended:

- All network centres should adopt uniform service tariffs that will be applicable to the entire network.
- The tariff structure should be clear and unambiguous.
- Each user should be able to fix in advance the maximum expenditure to be authorised for any activity.
- A system of discounts should be available, in relation to the amount of use over a given period (through prepayment schemes, fixed monthly payments etc.).

8.1.5. USER SENSITIZATION POLICY

A sense of identity should be stimulated by a "brand image" to be conveyed repeatedly to the client in the various phases of the process by which information services are provided. Under this policy the various functions provided by the network should be seen by the user as belonging to one service. This can be achieved by:

- using a common 'logo' or trade mark on all documentation (promotional literature etc.);
- distributing the results of information searches (which may originate from different centres) in a standard format with the logo or trade mark prominently displayed;
- encouraging marketing actions by different centres under the "umbrella" of the brand name.

Details of the marketing policy and plan adopted in Spain are given in Annex IV.

8.2. USER TRAINING SCHEMES

In addition to setting out guidelines for marketing and preparing of a promotion and dissemination plan, it is important to include one of the most effective aspects: the organisation of courses, seminars, conferences, symposia, etc. The approach to these different activities will vary considerably in terms of the target customer and the pursued aim.

A clear distinction will have to be made between, on the one hand,those designed to train specialists in accessing databases so that they can take on the responsibility of running a teledocumentation centre; and, on the other hand those intended to train actual or potential users in the contents of specific databases or in methods for choosing and requesting services in the light of information requirements, and those directed towards obtaining more users.

Awareness, acceptance and use of technological innovations by the user for whom they are intended, is a task requiring great human and material effort. This effort is justified however by the fact that training activities intended for users, whether actual or potential, can have a considerable effect on the volume and number of services requested, since actual knowledge of the system is the most direct and effective method of persuasion about its potential and applications.

8.2.1. DEMONSTRATIONS

Demonstrations should be thought of as sessions of dissemination and promotion. As indicated by experience, the most appropriate solution is to select a group of professionals with similar interests (university faculty members, businessmen, professionals from the same sector, etc.) and, in a meeting lasting two or three hours, give a general overview of teledocumentation services (what they are, how they function and which applications they have), and then to go on to focus on the specific databases which cover the participants'areas of activity and interest and carry out a practical demonstration of them. With this type of meeting, the user can have an initial contact with the system and begin to familiarize himself or herself with it.

The optimum number of participants depends to a large extent on the facilities available (size of the room, availability of a large screen or video monitors, etc.), but may range between 10 and 30.

8.2.2. PARTICIPATION AT CONFERENCES AND SYMPOSIA

Along the same promotional lines, the teledocumentation network should be systematically present at conferences, symposia, round tables, trade fairs, congresses or the like, which bring together scientists and other professionals grouped by area of actual interest at the national and/or international levels.

The professional attending such events is generally extremely receptive to methods of improving the effectiveness of their work. Putting up an exhibit at this type of meeting with a terminal open to the public (a public usually by nature select and specialised) is one of the best methods of dissemination and one of the principal sources of new users.

8.2.3. PARTICIPATION IN ALREADY ESTABLISHED COURSES

Another technique is the introduction of teledocumentation education in professional courses that have clearly become effective and reputable, or in university courses. If students are made aware of the importance of information, when they subsequently join professional sectors of activity they will doubtless become clients of information services.

8.2.4. THE SPANISH TELEDOCUMENTATION CENTRES' EXPERIENCES

As an example of the user training efforts required, the following figures summarize the experiences in promotion and dissemination of teledocumentation services of FUINCA over a period of four years.

Demonstrations and seminars	1980	1981	1982
Number of events	98	110	133
Number of participants	2,084	1,705	1,650

As may be noted, the improvement is constant over this period, with the general trend being one of an increasing number of demonstrations per year and fewer participants at each one, as smaller but more select groups are targetted.

As regards user training courses, activity in this period is reflected in the following figures:

User courses	1981-1982	1982	1983(partial)
Number of courses	20	17	16
Number of participants	423	not available	452

8.3. DEVELOPMENT OF A MARKETING PLAN

When the time comes to start marketing and disseminating teledocumentation it will be necessary to evaluate the market segments in which the new system should and can be introduced; for this purpose it is recommended that a marketing plan be adopted for the new services.

This marketing plan should include:

- an analysis of market segments in terms of priorities for marketing activity;
- decisions concerning the resources and techniques to be used in teledocumentation marketing;
- a policy for marketing actions by individual market sector.

This planning effort should greatly help to assure success in the introduction and acceptance of marketing activity.

8.3.1. ANALYSIS OF MARKET SEGMENTS

Those market segments considered to be most directly involved in the use of teledocumentation are:

- industry and service business
- libraries and information centres in the public and private sectors
- pharmaceutical laboratories
- universities
- banking and financial institutions
- public administration
- public and private bodies for the promotion of small and medium sized business
- the press.

One thing that is common to all these market sectors, is the need to have information to attain their institutions' objectives. Despite this, some will prove to be more receptive to the idea than others, which means that an in-depth study is needed on each segment so as to be able to make an effective job of marketing the new service.

In order to ensure an early and effective impact on the market, an initial group of immediately approachable market segments could be chosen:

- industry and service business
- libraries and information centres
- pharmaceutical laboratories
- universities

Experience shows that these segments are generally the most receptive to using this new technology.

A second group of market segments that is slower to respond, but worth approaching with a view to subsequent exploitation would thus include:

- banking and financial institutions
- public administration
- bodies for the promotion of small and medium-sized business.
- the press.

8.3.2. RESOURCES AND TECHNIQUES FOR TELEDOCUMENTATION MARKETING

When actual marketing actions are initiated for each market sector or segment the necessary resources and techniques to do this should be available. On the one hand there is a need for resources such as information brochures, books, newsletters or other printed material which can serve as a basis for the teledocumentation marketing work. On the other hand the use of techniques such as participation in and organisation of courses, seminars and lectures (as discussed in section 8.2) will be useful in the dissemination of the new service. Other techniques for dissemination such as advertising and mailing campaigns, should be studied.

For the best effect of marketing activities it is highly desirable for one person to be placed in charge of all functions related to the formulation and realisation of the marketing plan.

The following specific approaches are recommended:

- personal selling techniques should be used;
- meetings with select groups of potential users should be planned, agreed upon and carried out;
- lectures should be planned and held;
- it should be decided whether commercial advertising is to be used, and, in the affirmative case, to what extent and with what budget;
- it should be decided which mailing techniques would be the most productive in the short term;
- it should be decided whether to issue press releases, and if so to what extent, how frequently, etc.
- it should be decided what resources could be used to cultivate relations with current clients, after having made a study of the most important amongst them;
- an analysis should be made of the usefulness of appearing in existing directories, referral files, etc.

8.3.3. POLICY OF MARKETING ACTION IN INDIVIDUAL MARKET SEGMENTS

As regards the market segments referred to in subsection 8.3.1., a particular set of marketing operations should be carried out for each segment. The following list of actions by sector is presented as a model:

Immediately approachable, "success-guaranteed" market segments

* Industry and business houses

  Action on this segment could be directed as follows:

  - a mailing campaign by subsegment, including the sending of information brochures (in this way, this particular technique's effectiveness may be tested out);

  - personal interviews with prospective clients;

  - half-day meetings with select groups, as a follow-up to personal selling;

  - cultivation of current clients, or of potential clients with whom contact has been made;

  - lectures or short seminars given for audiences of potential users;

  - collaboration in the organisation of more specialised courses or seminars.

* Libraries and information centres.

  The orientation for action in this segment may be similar to that for the industry and business segment. Possible specific action here may also include:

  - preparation and publication of a handbook on "procedures for the automation of information services";

  - preparation and publication of a special commercial brochure on the same theme;

  - organisation of seminars for this specific sector.

* Pharmaceutical laboratories

  Action in this sector could be similar to that of the other two above. One or two persons could be appointed to take charge of boosting personal selling activities in this area.

* Universities

Action in this sector could be as follows:

- mailing information to university research directors and faculty deans;
- meetings with select groups, possibly at the level of a particular university, as a first step in personal sales promotion;
- cultivation of current clients, or of potential clients with whom contacts has been made;
- lectures or short seminars for audiences of potential users;
- encouragement of stimulus and incentive from the highest levels of government administration in this area.

Other market segments

Market segments that are slower to respond but worth approaching with a view to subsequent exploitation might be handled as follows:

* Banking and financial institutions:

- organisation of a meeting with a select group of bank directors;
- preparation of a simple publication with the lectures given at the above-mentioned meeting;
- marketing or free circulation of a banking and finance information newsletter;
- offering to hold lectures or short seminars for audiences of potential users;
- collaboration in the organisation of courses or more specialised seminars.

* Public administration.

- sales efforts through personal contacts, but without expending too much time or resources in looking for such contacts;
- cultivation of current clients, mainly through high quality services;

  - a promotional mailing programme aiming at the various governments department and regional and local authorities.

- * Bodies responsible for the promotion of small and medium enterprises:

  - planning and arranging meetings of select groups of businesses in cooperation with chambers of commerce and related organisations.

- * Press

  - collaboration in the organisation of courses or seminars.

9. STIMULATING A SPIRIT OF COOPERATION AMONG TELEDOCUMENTATION INTERMEDIARIES

9.1. EXCHANGE OF EXPERIENCE

Experience has shown that professional meetings of on-line searchers and other means of communication among specialists in this area are highly productive, and therefore in many countries they have become institutionalised, resulting finally in the creation of the so-called user groups or associations. In other countries, where the level of development is lower and such definite structures have not yet been set up, efforts are nevertheless being made in this direction.

9.1.1. MEETINGS OF TELEDOCUMENTATION CENTRE SPECIALISTS

Meetings of search specialists from various centres are one of the more useful ways of transferring knowledge, since they can provide information which can not easily be acquired either at conventional training courses organised by producers or distributors or in the courses given by experienced teledocumentation centres. Such information includes difficulties which arise daily in the preparation of search strategies, the location of appropriate information sources for a particular subject, the emergence of new information sources, the handling of new software, access to original documents, marketing techniques and dissemination, and so forth.

9.1.1.1. NATIONAL AND INTERNATIONAL MEETINGS

Specialist meetings can be divided into two major groups, depending on the origin of those attending:

National meetings: In Spain, such meetings are held once a year, and last three days with a wide attendance by specialists from national centres, whether associated with the network or not. In these meetings participants are encouraged to present papers.

In order to avoid too great a range of subjects, certain major areas can be identified beforehand for presentations and discussion, or the major themes may be determined from the proposals for papers when they are received, but in all events it is appropriate to have parallel sessions on different subjects, since not all specialists, particularly when certain centres are specialised, share the same concerns. Apart from the inherent value of the lectures given, one of the major attractions of this type of meeting is that it brings together specialists who in many cases do not live in the same town and whose contacts are therefore restricted to telephone calls or mail.

It should also be stressed that terminals be made available to the participants, so that they can set out and solve in situ their practical problems.

A summary of the meeting can be published in the form of a document (or book) which includes all the presentations.

The cost of holding Spanish national meetings has at each time been taken on by FUINCA, so that for the specialists they have been completely free of charge.

International meetings are very similar to the above national meetings insofar as their structure is concerned: they usually include several days of presentations, with various parallel activities by subject area etc., and interval periods given over to exchanges of opinion. A number of such meetings are held regularly - the International On-line Conference held annually in London in December, INFODIAL in Paris in the Autumn and others, particularly in the United States of America.

The main difference is that these meetings usually include an exhibition in which producers, distributors and even manufacturers of equipment put up stands allowing, alongside activities such as lectures, consultations on technical or economic matters or on actual practical cases. Another principal difference is the cost of attendance which is relatively high and, since they are usually held in Europe or North America, there is an extra cost of travelling and the stay for participants from other regions.

Publications brought out to summarise the proceedings of this type of meeting (usually in book form) are highly appreciated and often constitute a valuable tool for the specialist when he returns to his work.

Before and after such meetings, one or two day refresher courses are often given by database producers and distributors who make the most of the meeting to reduce travel costs.

9.1.1.2. REGIONAL GATHERINGS

These gatherings usually have a much more informal nature and endeavour to encourage a closer contact between search specialists living in the same area.

In Spain two examples of this type of gathering are to be found, one in Madrid and the other in Barcelona, both of which are organised by private rather than institutional initiative.

They are held every month and in both cases attendance is variable since they are often held outside working hours. The agenda is not fixed in advance although a theme of interest to all participants may be fixed at the previous meeting; in this case approximately a quarter of the allotted time is given over to this subject, with the rest left to discussing other theoretical or practical questions.

No minutes or conclusions are recorded of these meetings, unless an important decision has been taken or important news has been announced, in which case a note is drafted to be sent to all specialists who were unable to attend.

9.1.2. OTHER WAYS OF EXCHANGE EXPERIENCE

There are other ways of exchanging experience to satisfy specialists' desire for professional development and co-operation with colleagues in other centres. To attain a high technical level and keep it constantly updated requires considerable dedication to the study of handbooks, magazines, newsletters, etc., which means that any effort enabling a specialist to receive information that has been previously selected, processed and stored by another specialist will help to save time and improve productivity.

9.1.2.1. SPECIALISED SEMINARS

When a centre's information requirements lead it to seek new resources (databases or distributors) covering a particular subject area, the following work must be carried out:

- research into possible resources

- study of the interrogation language and the structure of the information of each source.

Subsequently, the teledocumentation centre concerned decides to establish a contract with a new source, a seminar, however short, enabling another centre which has already acquired a certain experience to transmit this experience, will be a great help. A certain number of experiments of this sort have already been carried out between various centres in the Spanish teledocumentation network.

9.1.2.2. TECHNICAL MEMORANDA

There is an example of this method of exchange of experience undertaken by one of the founder institutions of the Spanish network. It is a newsletter published at fixed intervals and at low printing cost (offset) which contains:

- the most important news for the period concerned, such as announcements on new databases, new distributors, training courses and international meetings,

- recommendations on the handling of databases, drawn up on the basis of studies or personal experience,

- cost-effectiveness studies comparing different distributors or databases.

The circulation of these technical memoranda is in principle intended exclusively for teledocumentation specialists but can also be extended to regular service users.

9.2. FORMATION OF GROUPS OF TELEDOCUMENTATION ASSOCIATIONS

As a result of the growth and development of the information industry, particularly in those countries in which the industry has grown most, associations of groups of producers, distributors and/or intermediaries are being formed to facilitate co-ordination and successful attainment of the common interests of their members.

The nature of these associations differs, and associations may be formed on an international, local (subnational) or national basis. Similarly, the typology of membership of these groups varies:

- associations or groups of database suppliers

- associations or groups of database distributors

- associations or groups of intermediaries or users.

There is also the case of mixed associations to which two or more types of members belong (e.g. association of database producers and distributors). The most extensively practised form of association world-wide is the database user or intermediary association (on-line user groups) which is described below, along with an analysis of their aims and legal status.

9.2.1. ASSOCIATIONS OF INTERMEDIARIES

The purpose of such groups is to facilitate the transfer of knowledge and experience in the field of teledocumentation. In recent years, during which the number of distributors, databases, teledocumentation networks and new information handing tools (software, hardware, etc.) has increased, there has been an even clearer need for such associations. Their success is manifested by their growth, in membership and objectives as well as in number, which has unceasingly expanded.

These associations, normally start with a small number of members often coming mainly from research centres, and subsequently encourage users belonging to other sectors, such as libraries, to join.

Among the benefits obtained, in addition to the exchange of experience, are economic advantages such as discounts provided by distributors on the cost of using databases. Furthermore, national associations of users and the meetings held by them enable database distributors to submit their new services and products for the consideration of information professionals.

The structure of these associations varies: some have a rather rigid structure, others are more flexible; the latter type of organisation is recommended at least in the initial period. Guidelines for the setting up and legal structure of an association are given in Annex V.

As regards the scope of operations there are also considerable differences among associations, although it appears advisable in the first phases for associations to be formed at a sub-national or even sectoral level, as for example an association of users in the field of medicine, or engineering, etc. In a second stage such associations could build up to the national level through cooperation or merging as appropriate.

The main objectives of an association of intermediaries are:

- professional development: facilitating direct exchange of experience and the preparation of training programmes tailored to needs of the members

- reduction of costs: securing of preferential tariffs for training and other services

- professional solidarity: protecting the interests of the members of the association.

The services of associations of intermediaries aim principally at two areas: education-training and communication.

In the area of education the following activities should be considered:

- seminars on dedicated databases

- seminars on database distributors

- seminars on the administration and organisation of teledocumentation centres.

In the area of communication the following should be emphasised:

- informal meetings

- publication of newsletters

- publication of directories

- other publications of use to the local teledocumentation community.

9.2.2. ASSOCIATIONS OF INTERMEDIARIES AND PRODUCERS

Experience shows that in the more advanced countries, the trend is towards the creation of associations of intermediaries or users as discussed above, for example the EURONET DIANE user group.

On the other hand in countries where the industry is less developed, it is recommended that mixed associations of intermediaries and producers be formed, since there is, in the early stages, no clear separation between the functions of the two. In addition to the objectives already described an association of this type can make a decisive contribution by making available information which the producers lack and which the intermediary has acquired by contact with other database distributors and producers.

10. DEVELOPMENT OF THE DATABASE PRODUCTION AND DISTRIBUTION SUBSECTORS

Although the previous discussion of functions and activities of the teledocumentation network have emphasised the role of teledocumentation centres, database producers, and distributors should also be supported by the network as major elements of the information-consumption chain. In order to optimise development of the national database industry, should consider from the outset for each of these subsectors:

- the objectives to be reached
- the action programmes by which promotion and development can be achieved.

10.1. DATABASE PRODUCERS

The main common objective of database producers is to make known their achievements and promote the exchange of experience among current or potential data producing institutions.

An action programme to attain this objective, should include the following elements:

- activity monitoring the national situation concerning database producers
- stimulating exchanges of experience among database producers and between them and database distributors
- facilitating the design and implementation of projects for the creation of databases by providing expert advice on such projects
- projecting the image of the national database industry in other countries.

10.1.1. ACTION PLAN FOR PROMOTION OF THE DATABASE PRODUCTION SECTOR

Once the various actions to be carried out have been decided, each of the priority activities to be included in the action programme should be detailed in an action plan. If consideration is given to each of the actions mentioned above, concrete activities may be formulated as follows.

For monitoring the situation concerning database producers, it is suggested that directories or reports on projects in progress and national databases accessible through telematic facilities be published. In these documents details should be given on each of the databases, in such a manner that the national situation in this field will become clear.

For stimulating the exchange of experience among creators of databases and between the latter and distributors, the organisation of seminars or courses on the distribution and marketing of databases is suggested.

In facilitating projects for the creation of databases there are various possibilities; these can best be implemented through the signature of co-operation agreements making it possible to participate in and/or subsidise the completion of such projects, which might involve for example:

- activities related to the computerisation of documentary holdings

- the preparation of support tools for retrospective information searching.

In addition, any other activity involving the development of new technologies may be considered.

In the area of projecting a national database image abroad activities could include:

- the organisation of seminars on databases, particularly aspects concerning national policy in this sector, in collaboration with institutions abroad;

- participation of database producers in the preparation of national plans in which a particular aspect of information policy is involved, as for example, national electronics and informatics plans or the action plan in the field of scientific information and documentation;

- publication of articles on the situation of the country's database industry (such as the reports suggest above in the first area of action) in periodicals specialising in this sector.

10.2. DATABASE DISTRIBUTORS AND COMPUTER CENTRES

The main objective in the area of database dissemination and informatics is the consolidation of initiatives undertaken by institutions or businesses for establishing distributors. In order to achieve this, an action programme needs to be set up, including such elements as:

- advice to database distributors on technical, marketing and legal aspects, particularly with a view to promoting the complementarity of development plans for national and international systems,

- promotion amongst teledocumentation users of the services of the country's distributors.

10.2.1. ACTION PLAN FOR THE DATABASE DISTRIBUTOR SECTOR

The practical activities to be developed might be as follows:

In the area of advice to database distributors on technical, marketing and legal aspects, activities such as the following could be suggested:

- preparation of market reports on databases in other countries, so as to help new distributors to be aware of the development of the industry
- design of standard contracts for the use of databases by national distributors
- identification of databases to be distributed by national distributors in the future
- setting up arrangements for exchange of experience and sharing facilities among national distributors and between them and foreign distributors

For actions to promote the services of the country's distributors amongst users of teledocumentation, it is suggested that each of the databases existing in the country be promoted at national and international levels by, for example, publication and wide circulation of database distributor lists.

11. BUILDING UP R & D AND CONSULTING CAPABILITIES FOR THE LAUNCHING OF NEW VALUE ADDED SERVICES

11.1. INFORMATION MARKETING AND CONSULTANCY BODIES

Information consultants and "information brokers" have emerged very recently in Europe following similar developments in North America. Towards the end of the last decade small firms grew up offering solutions to information problems. Their difference with respect to other more traditional information services lay basically in their business strategy. Their customers proved to be medium-sized companies which were not sufficiently large to have their own information services.

Information consultants, in an effort to adapt themselves to the requirements of all their potential clients, offer many types of services.

Recently, the French national agency for the application of research (ANVAR) conducted a comparative study of the services offered by North American and European consultants. The conclusions are summarized in the table below:

TABLE 4: SERVICES OFFERED BY INFORMATION CONSULTANTS IN EUROPE

Type of service (frequently offered in North America)	Extent to which offered in Europe
Obtaining documents	Yes
Monitoring of particular industrial sectors	Rare
Market study	Rare
Preparation of documents	Not frequent
On-line search	Under 50%
Organisation of documentation centres	1 or 2 consultant service per country
Subcontracting of documentalists	Only 1 consultant service in Europe
Indexing	Rare
Information analysis	Only for innovation processes
Selection of documentation	No
Bibliographies	Yes
Cataloguing	Not frequent
Press service	Rare
Software design	Rare
Drafting of documents (synopsis)	Rare
Preparation of directories	At most one consultant service per country
Organisation of exhibitions	No
Analysis of information requirements	About one consultant service per country

TABLE 4 (Cont.)

Type of service (frequently offered in North America)	Extent to which offered in Europe
Search for experts	Rare
Search for photographs or films	No
Construction of thesauri	Rare
Public relations	No
Purchase of documentation	Rare
Rapid consultation service	Under one third
Management of archives	No
Preparation of profiles	In 50% of cases
Organisation of seminars	Less than one third
Turnkey design	Rare

As can be seen the potential range of services offered by information consultants is very wide although the spectrum provided by European consultants is still significantly less, on the average, than that offered by their North American counterparts. Several of these services can, complement or extend the more 'traditional' activities of teledocumentation centres and should be considered for introduction within the national teledocumentation network. The operation of a Spanish information marketing and consultancy body is described in Annex I as an example of a national approach in this area.

11.2. INNOVATION IN INFORMATION PRODUCTS

One of the concerns of the information marketing and consultancy bodies has been to develop new information products that are more in line with the needs of users, with profit margins that can provide, in the near term, a certain degree of self financing to those teledocumentation centres offering special services to businesses or institutions. To do this it will be necessary to study and evaluate possible innovations with regard to traditional information service products.

At present, particularly at management level in industry and private business, it has been noted that the services offered hitherto by teledocumentation centres often do not completely satisfy the information requirements, as the information supplied still needs to be elaborated and processed in order to meet users' needs. Innovations in information products can thus directed towards the preparation of information with added value, in which a study or report on the theme is made.

Depending on the level of study requested by the client there are two types of reports with added value:

- Specific topic reports

- Situation or 'state of the art' reports.

On the one hand there are the first type of report in which, on the basis of information retrieved during an inquiry in databases, a short study is drawn up in which opinions, trends, techniques, etc. are extracted from the references and summarised, but no definite conclusions or subjective opinions are adopted on a particular subject.

Another possible new information product is the situation report or 'state of the art' report, drawn up on the basis of results obtained from an exhaustive information search, and providing an overall view on the subject. For the preparation of situation reports it is necessary to call upon the services of an expert in the area, as well as of a database access specialist who conducts research, selects and classifies the information with the help of the expert and prepares the report and final conclusions on the state of the art. For this task it is vital to have wide knowledge of the subject so as to be able to draw the necessary conclusions.

An important factor as regards the marketing of these types of products is presentation. This should conform to a set of standards both to facilitate the work involved in preparing the report and to make it attractive to the reader. Areas to be standardised include:

- title

- table of contents and layout

- writing standards

- purpose and content of specific sections

- Title

The title of the report should be made to stand out using special lettering, and therefore it is recommended that the title be short.

- Table of contents and layout

The table of contents is very important and should in all cases be consistent with the layout of the report. The various sections of the report may be distinguished for example by using differently coloured pages.

- Writing standards

For the writing of these reports it is recommended to bear in mind the following recommendations:

- writing in impersonal form (in the third person)

- concise style with short paragraphs
- avoidance of broad statements; each statement should be accompanied by a reference to its source
- use of the conditional tense, as appropriate, to indicated which statements have limited or doubtful validity
- avoidance of repetition
- use of consistent and correct technical terminology

- Purpose and content of specific sections

In the introduction and presenting the purpose of the report, it is necessary to specify the subject of the search and the information resources consulted (databases, reference works, etc.), indicating, for each resource, the producer.

In the main body of the document, it is advisable to introduce a carefully designed structure with sub-sections which help to separate and highlight the results of the information search.

In a "references" section or bibliography, a presentation should be made of both bibliographical references and references to data concerning the subject of the search. A specialist should be asked to classify or order the selected references.

Another section should specify information resources used in the search, including the producers or publishers, their addresses, etc.

- Additional information

Each report should include information on the institution which produced it, such as other services provided, tariffs, etc.

In Annex VI an example of an information search report is given, reflecting all the points made above.

ANNEX I

DEVELOPMENT OF TELEDOCUMENTATION IN SPAIN

A CASE STUDY

The development of teledocumentation in Spain has been marked by a series of events and actions which occured over more than ten years:

- 1971 and 1972: identification and testing of teledocumentation support technologies (telecommunications, databases and terminals) by the Fundacion para el Desarrollo de la Funcion Social de las Communicaciones (FUNDESCO).

- 1973: experimental use of teledocumentation by institutions accustomed to providing documentation and information services through conventional media. In this way, the first database access terminals in Spain began to appear in 1973.

- 1973-1976: design and testing of teledocumentation services and identification of the teledocumentation market. In this stage an inter-institutional agreement covered all the sponsoring and promoting institutions of the project.

- 1977: evaluation of the test; analysis of obstacles and favourable circumstances for the introduction of the new services. During this year the policies and strategies for such an introduction were formulated.

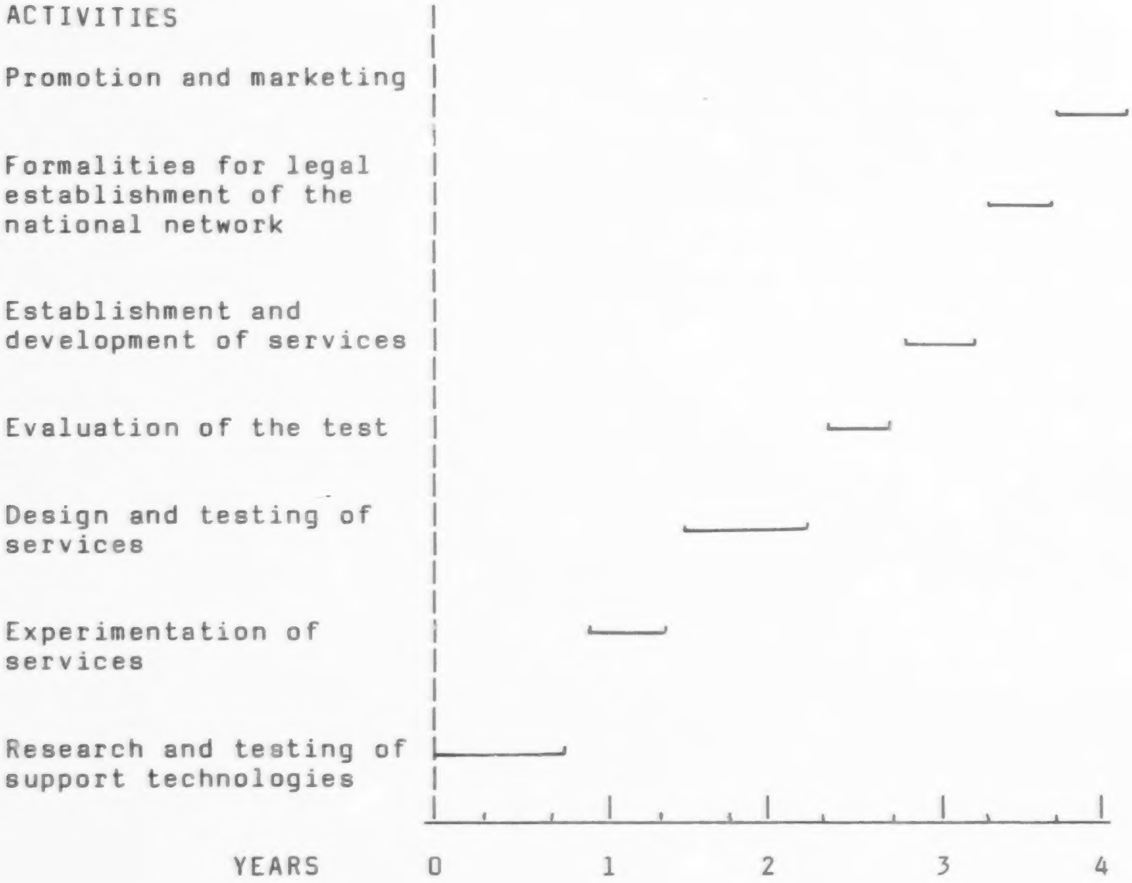
- 1978: beginning of the establishment and development of teledocumentation services in Spain. This stage saw the beginning of the marketing of services, as well as action in user training, tariff policy, standardisation of procedures, definition of a national plan of action, etc. As regards the institutional framework, a new inter-institutional agreement was signed by all the original promotion institutions as well as the additional institutions that had joined them.

- 1979: formation of a body with independent legal status for promotion of the use and development of teledocumentation in Spain. This body was set up as a private cultural foundation in which FUNDESCO and the promotion institutions participated. The new foundation was set up with the name of Fundación de la Red de Informatión Científica Automatizada (FUINCA). <<Later changed to: Fundación para el Fomento de la Informatión Automatizada (Foundation for the Promotion of Computerized Information) >>

- 1980 - 1981: the teledocumentation services in Spain were promoted and marketed by FUINCA and other institutions forming a group of teledocumentation users under the auspices and with the help of FUINCA. Likewise, FUINCA began to acquire and consolidate know-how. In this period the institutional framework was provided by FUINCA and the management committee of the centres comprising the national teledocumentation network.

- 1982: encouragement was given to the corporate development of Spanish database industry by the transfer of know-how acquired by FUINCA.

Throughout the above ten-year period, which covered the initial identification and testing of new teledocumentation technologies through to the acquisition of know-how in this subject area, the database industry was able to develop in Spain with the collaboration and participation of a group of institutions that brought together all their efforts to achieve a common objective.This experience, as it was the first of its kind, necessarily became one of trial and error, which is one of the reasons why it required so much time. The know-how acquired may help other countries reduce significantly the time they need to instal similar teledocumentation networks, which could basically fit within the following timetable:



DEVELOPMENT TIMETABLE FOR A NETWORK OF

TELEDOCUMENTATION CENTRES

FUINCA AN EXAMPLE OF A NETWORK PROMOTION AND INFORMATION CONSULTANCY BODY

FUINCA has focused its attention on applying informatics and telematics technology to help satisfy the information and documentation requirements of the public and private institutions and professional bodies in Spain. In keeping with its status as a foundation, FUINCA carries out two types of activity: promotion of database creators and teledocumentation centres, purely as a public service, and other activities involving the provision of consulting and marketing services in the information field, which supplement the former and support them financially to a large extent.

In both cases the activities carried out are non-profit-making, in the legal sense of the expression, since any possible financial returns must be devoted entirely to extending the activities of the foundation.

Structure

FUINCA is a private cultural foundation of a permanent nature. In article four of the statutes of FUINCA it is stated that:

"Its non-profit-making objectives are to promote throughout Spain the use and development of teleinformatics and telecommunications technologies to facilitate access to national or international databases of a documentary, factual or textual nature which will be referred to as teledocumentation technologies".

The management groups governing FUINCA's activities are:

- The board of Sponsors consisting of a President, a Secretary and eight additional Sponsors
- The executive officers which consist of a managing director, a deputy director and an administrator.

Services

The services provided by FUINCA as an information marketing and consultancy body fall into four major aeas.

A) Consultancy

This service can be said to have four different orientations:

- Technical:

  For example,

  (i) turnkey installation of on-line use units or teledocumentation centres

  (ii) setting up databases or the computerization of documentation functions.

- Legal: reports, contracts and legal advice in the area of intellectual ownership of databases and computer programmes for documentary applications

- Commercial: centred on the distribution and marketing of databases of wide public interest.

- Auditing: monitoring of information flows and costs for businesses and institutions.

B) "Tailored" information

This service provides three options:

- Situation report with optional periodical updating. An analysis of geopolitical factors, socio-professional conditions, markets, products, technologies, suppliers and supplies, businesses, expertise, etc. in a particular area

- Information circular. Providing a small group of subscribers bibliographic searches or data on very diversified or particularly specialised topics;

- Personalised synopsis. Preparation of periodical reports tailored to the information requirements of businesses, institutions or private persons.

C) Training

Two types of courses are given:

- Regular courses. Educational activity intended to make known the potential of the various information resources existing in the world: computerized databases, documents on videodisc or microfilm, etc.

- Courses provided on demand. Teaching activity intended to train specific groups of users and/or database specialists on the basis of pre-established needs.

D) Sectoral information newsletters

Periodicals addressed to sectors whose information requirements are clearly defined or which request such publications.

Tariffs

The currently prevailing tariffs given below vary considerably depending on the type of service:

Information consultancy

- Technical
  - (i) Turnkey installation of on-line search units with supply of equipment, 700,000 to 2,500,000 pesetas ($4,500 - $16,500), depending on technical characteristics of the selected equipment.

    Without supply of equipment, 300,000 to 1,000,000 pesetas ($2000 - $6500).
  - (ii) Organisation and computerization of document collections from 3,000,000 pesetas ($20,000), depending on the volume of documents in the collection.
- Legal
  - (i) Reports and contracts in matters of intellectual ownership of databases and informatics programmes for documentary applications from 150,000 pesetas ($1000), depending on the complexity of contracts and their negotiation.
- Commercial
  - (i) Distribution and marketing of databases of general interest. 1,000,000 to 3,000,000 pesetas ($6,500 - $20,000).
- Auditing
  - (i) Organisation of information auditing for business and institutions from 150,000 pesetas ($1000)

Tailored information

- Situation report with optional periodical updating
  - (a) Report

    From 250,000 pesetas ($1500) depending on complexity. In all cases the cost of the report is set in advance after submission of an *pro-forma* invoice.

(b) Periodical updating

30% of the cost of the report for each update.

- Information circular

Minimum annual subscription 240,000 pesetas ($1500).

- Personalised synopsis

Minimum annual subscription : 320,000 pesetas ($2000) (one report per quarter).

Training

- Regular courses

These vary in cost depending on length (16 hours, 32 hours, etc.)

- Courses on demand

From 250,000 pesetas ($1500) depending on length and number of practical sessions.

Sectoral newsletters

- "Banking and finance review"

10,000 pesetas ($65) per year.

ANNEX II

A MODEL TELEDOCUMENTATION SPECIALIST TRAINING COURSE

OBJECTIVES

Integrated training of teledocumentation specialists should have a set of objectives beyond what can be achieved through the short training courses provided by database producers and distributors. Such objectives would include:

- Obtaining information on existing on-line documentary resources (databases) around the world.
- Analysis of methods and systems for access to information held in databases.
- Introduction to the organisation, management, promotion and dissemination activities of a teledocumentation centre.
- Learning the protocols or information retrieval languages of the various database centres.
- In depth knowledge of deep structure of the most frequently used databases.
- Introduction to additional services, other than on-line searching, such as retrieval of original documents.
- Presentation of the problem of selecting, installing and operating equipment for remote interrogation of interactive systems.

SYLLABUS, THEORETICAL AND PRACTICAL CLASSES

Data collected by FUINCA over its six years of training activity have provided it with an accumulation of experience whereby it can draw valid and applicable conclusions on general training requirements in a centre during its starting-up stage. Analysing the syllabuses designed for the numerous courses offered (10 in 1982) has led to the preparation of a very specialised course in which all the objectives mentioned above can be covered.

The name of the course is "Training of an intermediary for computerized information retrieval". Its duration is 32 hours, plus time given over to practical work. It contains 11 sections as follows:

I INTRODUCTION TO AND GENERAL MODEL OF INTERACTIVE REMOTE INQUIRY SERVICES (IRIS's)

1. Introduction
2. General model of an IRIS
3. Database distributors
4. Data networks
5. Database producers
6. Information intermediaries or operators

In this section an analysis is made of the cycle followed by information from the time it is generated by a scientist or engineer until it reaches the final user, as well as a description of each of the elements in an IRIS.

II. DATABASES AND DATA BANKS

1. Introduction
2. Methods of access
3. Information content and areas covered
4. Information resulting from interactive inquiry
5. Reference databases

Databases and data banks are the first link in the chain of on-line information. Their mission is to collect and process (by indexing and standardized presentation) information from primary sources, the preparation of a marketable information product and the periodic updating of this product. In this section a systematic study is made of existing database types, the information they provide, the areas they cover, etc.

III. SYSTEMS OF ACCESS TO INFORMATION

1. Introduction
2. Review of the major database distributors

The third section focuses on information about organisations responsible for loading into a computer and marketing databases: the distributors or wholesalers of on-line information. The producer of a database very rarely acts as distributor since, generally speaking, it prefers to entrust the product to firms that specialize in managing a large number of databases.

When a user wishes to consult a database, it is easist for him or her to find it at a database centre, because this implies a single system of access and a single interrogation software. In this section an overview is given of the most important North American and European distributors, their content, technical assistance, prices, policies, etc.

IV. RETRIEVAL SOFTWARE

1. Management functions
2. Assistance functions
3. Search Functions
4. Printout and presentation functions
5. Possibilities for processing the information contained in the databases
6. Available transmission speeds and compatible terminals

In this section a study is made of the commands which make up the information retrieval languages of the most frequently utilised database centres, with an individual analysis of each language's functions and syntax.

V. DATA NETWORKS

1. Introduction
2. Types of network
3. Network architecture
4. Types of switching: circuit, message and packet
5. Switched telephone network, telex and leased lines
6. Special data networks
7. European networks
8. North American networks
9. Videotex systems

Although the infrastructure of telecommunications is merely a tool for the use of interactive remote inquiry services (IRIS's), a knowledge of the basic concepts must be acquired, since access via the national and international data networks is part of the database distribution system. In this section a study is made of the design and operational characteristics of typical networks and also of the most frequently used individual networks which provide access to the distributors described earlier.

VI. TERMINALS

1. Introduction
2. Range of terminals utilisable in an IRIS, and technological developments
3. Terminal selection criteria
4. Prices
5. Technical characteristics

The selection of equipment is an important factor in the starting up of a teledocumentation service, so the training of the specialist in this area is something which should not be ignored.

VII. IDENTIFICATION OF INFORMATION REQUIREMENTS OF USERS

1. Interview prior to a search
2. Basic steps in the interview
3. Conceptualisation of a search
4. Personal contact during the interview

Focussing now on the provision of information services to users, one of the main tasks of the search specialist is that of identifying the client's requirements and translating these into an information request, which can be met through one of the services provided by the centre.

The objectives of an interview or conversation with the client are basically:

- To give the specialist all the necessary facts and clarifications for a correct understanding of, and approach to, the subject of the inquiry

- To detail the particular aspects within the inquiry that are of special interest to the user.

This section of the course will help to build up a systematic approach to identifying clients requirements.

VIII. PROCEDURE FOR RUNNING AN INFORMATION SEARCH THROUGH A TERMINAL

1. Introduction
2. Procedure for obtaining the search request
3. Study of the search subject by the specialist
4. Selection of the database(s) in terms of information requirements
5. Consultation of thesauri and dictionaries for the selection of descriptors
6. Considerations on exhaustivity and relevance
7. Definition of search strategy
8. Running a search on the terminal
9. Obtaining on-line or off-line references
10. Evaluating the relevance of the results

Once the subject of the inquiry has been defined and placed in its proper context the analyst will proceed with the conceptual approach, preparation of the search, (using dictionaries and thesauri) and lastly to solving it at the terminal. This section is given over to analysing and describing each of the phases of this process including reception, evaluation and transmission of the results.

IX. LOGIC OF AN INFORMATION SEARCH PROCESS THROUGH A TERMINAL

1. Basic notions of set theory
2. Logic of boolean search
3. Search logic with specific weighting of descriptors
4. Shortening or truncation of terms

This section is the practical application of section IV (in which retrieval languages of the various distributors are studied) to the actual running of searches through on-line information systems.

X. PLANNING AND INSTALLATION OF AN IRIS

1. Introduction
2. Feasibility study
3. Costs, irrespective of the number of searches
4. Operational cost of a search or profile
5. Total operation costs in terms of the number of searches expected by the IRIS
6. Other decision-making factors: areas covered, geographical coverage, typology of services, factors of quality of the IRIS, conditions of access to the IRIS
7. Installation of an IRIS: general physical arrangement, the operation room, staffing
8. Management of the IRIS
9. Incorporation of the IRIS Qin the institution
10. Promotion of the IRIS among potential users

This penultimate section is given over to an economic assessment of the maintenance and operation of an IRIS and the organisational, managerial and promotional work it involves.

XI. PRACTICAL EXERCISES

Lastly an exercise may be done with a set of increasingly difficult practical cases, in which the trainee will have the opportunity of taking the inquiries prepared throughout the course to the terminal.

DURATION

One of the fundamental aspects to be taken into account during the specialist's training period is practical work at the terminal. This should be considered as one of the most important parts of the course, and as much time as possible should be given over to it (at least 10 hours). Bearing in mind all that has been said hitherto, the duration of a good quality course should not be less than 40 to 50 hours.

TEACHING MATERIAL

In addition to the material distributed directly by the producers and distributors of databases - handbooks, thesauri, teaching aids, etc. - there is a range of very specialised literature referring to information systems, published by experts in online documentation, and by organisations such as FUINCA, ASLIB, etc.

Some of the more representative items are mentioned below:

A. TEXTS

* Fundación de la Red de Información Científica Automatizada (FUINCA).- Introduccion a la teledocumentación. Aplicaciones de la telematica a las actividades nacionales de información y documentación. - FUINCA, - Madrid, 1982.

* Fundación de la Red de Información Científica Automatizada (FUINCA).- Bases de datos del mundo. Catalogo de sistemas de información científica, tecnológica, social y económica accesible desde España por medios telemáticos. - Editorial Alhambra, Madrid, 1981.

* Fundación de la Red de Información Científica Automatizada (FUINCA).- Distribución y comercializacion de bases de datos. - FUINCA, Madrid,- March 1982.

* International Association of Technical and University Librarians.- Proceedings, International Seminar on user Education in the Online Age Gothenburg, Sweden, 17-19 August 1982.- ISBN 0018-8476.- V14 1982, published by the Association.

* BERENGUER PENA, José Maria. _ Información tecnólogica y función de inteligencia. _ Fundación Empresa Pública, Madrid, 1982.

* BERENGUER PENA, José Maria. - Guía de innovaciones tecnológicas para archivos, bibliotecas y centros de documentación. - ANABAD, Madrid, December 1981.

* COLL-VINENT, R. (ed.). - Investigación con ordenadores. Búsqueda online. - A.T.E., 1981.

* DORE, Dominique and others. - Connaître et utiliser les banques de données. - Centre d'Information des banques de données, Paris 1981.

* CRONIN, Blaise (ed.). - The marketing of Library and information services. - ASLIB, London 1981.

* BARES, Michel. - La recherche documentaire dans le contexte télématique. Modalités d'automatisation et utilisation des bases de données. - Technique et Documentation (Lavoisier), Paris, 1982.

* PALMER, Roger C. - Online reference and information retrieval. - Libraries Unlimited, Inc., Littleton, Colorado, 1983.

NB: The name of the Fundación de la red for Informatión Científica Automatizada has been changed to: Fundación para el Fomento de la Informatión Automatizada.

* HOOVER, Ryan E. and others. - The Library and information manager's guide to online services. - Knowledge Industry Publications, Inc., White Plains, New York, 1980.

* LEMAIGNAN, Ch. - Le comportement des transmetteurs en information scientifique et technique. - Paris, La Documentation Française, 1978, Collection BNIST.

* Logiciels et systèmes documentaires, étude réalisée par le CXP. - ADBS, 1974. - Cahiers et l'ADBS, Sciences et Techniques de l'Information, Tomes I,II,III.

* MALLEN, M.C. - La recherche documentaire intéractive: Psychologie d'une activité nouvelle. - La Documentation Française, Paris, 1977, Collection BNIST.

* MOUREAU, M.- GIRARD, A. - "Etude comparée de la stratégie d'interrogation dans un système en langage organisé et dans une système en langage naturel". - AUTOMATISME, Tome XVII, n° 6-7, June-July 1972.

* HENRY, W.M. - LEIGH, J.A. - TEDD, L.A - WILLIAMS, P.W. Online Searching - An Introduction. Butterworths, London 1980, ISBN 0408106964.

* MOUREAU, M. - "Les aspects linguistiques des stratégies d'interrogation dans la recherche bibliographique sur ordinateur". - Documentaliste, Volume 13, n° 5-6, September-December 1976.

* MOUREAU, M. - Le Documentaliste face au défi de l'informatique. - Institut Français du Pétrole, Reuil Malmaison (France), Réf. 28617, November 1980.

* MOUREAU, M. - GIRARD, A. - "Différents utilisateurs, différentes stratégies pour un même problème". - IDT81, Association des Documentalistes et Bibliotécaires spécialisés (ADBS), Association Nationale de la Recherche Technique (ANRT), Paris, 1981.

* WOLFF-TERROINE, M. - "L'impact du conversationnel sur les spécialistes de l'information", Symposium ICSU/AB, The online revolution in information implications for the users - Paris, July 6-7, 1978.

* BENEST, B.J. - Evaluation économique d'un système d'information et analyse de la valeur.- Travail et Méthodes, n° 334, February 1977, p.44-52.

* BENEST, B.J. - Répartition des charges dans une service de documentation. Travail et Méthodes, n°324, April 1976, p.35-41.

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- DUTHEUIL, Ch. - Choix des bases et banques de données. - Centre national de l'Information Chimique (CNIC), July 1981.
- DEWEZE, A. - Objectifs, fonctions et budget de centres de documentation sectoriels (électrotechnique, mécanique, métallurgie). - Comité National de Documentation Scientifique et Technique. - Préparation au VIè plan, Groupe GR5 Réseau Documentaire. - Rapport pour le groupe d'étude informatique de Documentation Scientifique de l'ADIRA, établi le 28.04.70 - 19 pages.
- BLAMOUTIER, P. - Les langues documentaires. - CNRS-IEJE Grenoble, 1978.
- ISO - Norme internationale. ISO 2382/VI - International Organisation for Standardisation, Geneva 1974 (E/F).

B. DIRECTORIES

- "Bases de données et centres serveurs". - Documentaliste, Sciences de l'Information, Volume 17, n°6, November-December 1980, special issue.
- HALL, J.L. BROWN, M.J. - Online bibliographic databases, a directory and sourcebook. Third Edition ASLIB, London 1983. - ISBN 0851421679
- Association Nationale de la Recherche Technique Répertoire des banques de données en conversationnel, Diffusion Lavoisier, Paris, 1984. - ISSN 0758-816 X
- CUADRA Associates Inc., Directory of Online Databases, Quarterly. ISSN 0193-6840.

ANNEX III

A COURSE ON TELEDOCUMENTATION FOR MANAGERS

I. INFORMATION AS A CONSUMER GOOD AND AN ASSET FOR BUSINESS

1. Introduction
2. Differences in information requirements at various levels of responibility
3. Requirements in terms of the size of business or its particular strategy
4. Diversification of Businesses towards information production and marketing activities
5. Conclusion

II. CAUSE AND EFFECT OF CHANGE: THE NEW INDUSTRIAL SECTOR OF DATABASES

1. Introduction
2. A traditional market model - Database producers and distributors, telecommunications networks and information intermediary or analysis centres.
3. Encouragement by international programmes or economic groups
4. Volume of the database market: approximately one quarter of the volume of the information service business in the more advanced countries
5. The mechanisms of the database market in facilitating access to external information

III. A WIDE RANGE OF TECHNOLOGICAL, GENERALLY COMPUTERISED, INFORMATION RESOURCES

1. Introduction
2. Resources based on formal publications such as periodicals, on technical reports (grey lterature) and on negotiable technologies (patents, licenses, etc.)
3. Those focusing on particular disciplines or aspects to interdisciplinary ones
4. Bibliographic factual and textual resources with, in some cases, a data processing capability
5. Other technological information resources
6. The proper mix of services for an attractive, cost effective service.

IV. THE PROCESS OF INNOVATION AND TECHNOLOGICAL INFORMATION

1. Introduction
2. The decsisive role of information in innovatory activities
3. Increasing necessity to obtain information for the processes of business diversification
4. The average lifetime of information in competitive technology sectors shortening more rapidly than that of other resources in such sectors

V. BUSINESS INTELLIGENCE UNITS

1. Introduction
2. Skills and aptitudes for obtaining, processing and using information
3. Mediation to ensure appropriate information at each level of the business
4. Integration of the intelligence function into business strategy and management
5. The short-term future of business intelligence services

VI. THE INTELLIGENCE STRATEGY OF A MEDIUM-SIZE INDUSTRIAL BUSINESS

1. Introduction
2. Intelligence objectives
3. Structure of business intelligence systems

VII. PRACTICAL CASE STUDIES

1. Searches for bibliographical information or data on specialised subjects: e.g.: research on industrial applications of the laser; sales forecasts for laser equipment in Western Europe; applications of laser technology to the manufacture of semi-conductors; the number of businesses manufacturing such products using on laser technology; patents covering laser semi-conductors; business mergers related to laser technology.
2. Analysis of geopolitical factors, social and labour aspects, markets, products, technologies, suppliers or supplies availability of experts, etc. Presentation of the example of a status report providing a general view of the various forms of utilisation of solar energy and current applications. The report emphasises knowledge on projects existing around the world in the design, construction and operational phases and the results obtained. Likewise it brings out concrete data on market forecasts for solar energy.
3. Organisation and setting up of an intelligence unit. (The elements of this case study to be determined at the beginning of the seminar by the participants so that the case is as closely suited as possible to he needs of those attending).

ANNEX IV

COMMUNICATION AND DISSEMINATION ACTION PLAN

Details are given below of an integrated communication action programme to inform the potential customer of the Spanish network on what it is and which services it can provide to the user community, as an example of a marketing policy and plan.

OBJECTIVES

THe objective of the network's 1979-1980 communication programme was defined at three levels:

- The intention was to reach, in Spain, the overall average rate of utilisation of information services recorded in 1978 in the countries of the European Economic Community

- The proportion of information obtained from Spanish sources was to be at least 35 per cent

- The time-limit set to realise the above goals was the end of 1980

- Two distinct sectors were picked as primary targets:

  - the information users in the education sector (university, secondary, technical education, etc.)

  - the information users in the business sector.

There is a stark contrast in the type of information used by these two sectors. The first obtains information either from primary or from secondary documents, whereas the second needs primary documents and information provided by commercial suppliers.

COMMUNICATION MEDIA

In line with the above considerations, the following plan for utilisation of communication media and aids was adopted:

Medium	Vector
Daily press	Articles and advertisements
Radio	Interviews and advertisements
Specialist press	
a) General financial and business magazines	Articles, "tailored" information brochures and advertisements, interviews with users
b) Technical journals engineering, chemistry etc.	Interviews, articles, information brochures and advertisements
Television	News reports, interviews, demonstrations

Among the various possibilities, the most frequently used were:

- articles
- advertisements
- interviews
- tailored information brochures
- demonstrations

KEY ASPECTS OF THE 1979-1980 COMMUNICATION CAMPAIGN

Within any communication campaign one must make decisions as to the type of "message" to be communicated. The 1979/80 Spanish campaign decided that the list of messages given in Tables I and II were the most appropriate for the two phases of the campaign.

The central theme was "appropriate or tailored information". This had to relate to the following (perceived) requirements of potential information users:

- appropriate coverage of the services
- accessibility
- ease of formulation of questions
- promptness of response
- accuracy
- exhaustivity
- relevance
- timeliness of the information
- cost/benefit
- time-saving

The campaign had also to overcome the following potentially negative aspects:

- inadequacy of coverage
- "overselling" of the potential usefulness
- unreliability
- access difficulties
- insufficient attention to the value of information
- fear of technology
- unwillingness to make cost/benefit analysis

In the tables which follow the various messages are assessed in relation to the elements in the above lists of positive and negative aspects.

TABLE I

CATCH PHRASES FOR THE FIRST PHASE OF THE COMMUNICATION CAMPAIGN

Possible catch phrases or ideas	Consistency with campaign theme	Consistency with the different characteristics of the teledocumentation services	Credibility	Acceptability
1. A package of services for each information requirement	Consistent with the central theme and indirectly so with others	Implies services flexibility	Provides guarantee of access	A format that is accepted in other fields
2. The response to your information requirements	"	Unclear	May cause doubt	May cause a feeling of invasion of privacy
3. Tailored information services services	"	Implies service flexibility	Provides guarantee of access	A format that is accepted in other fields
4. Just ask for the information you need. We will find it for you	"	Unclear	May cause worry, as it does not guarantee	The idea of support is well accepted

TABLE I (Cont.)

CATCH PHRASES FOR THE FIRST PHASE OF THE COMMUNICATION CAMPAIGN

Possible catch phrases or ideas	Consistency with campaign theme	Consistency with the different characteristics of the teledocumentation services	Credibility	Acceptability
5. An aid in your search for information	Consistent with the central theme but less so	Does not relate to the quality of the services	May cause worry, as it does not guarantee	The idea of support is well accepted
6. Just ask, and you will get the the information that is appropriate to your requirements	Consistent with the central theme and indirectly so with the others	Implies service flexibility	Provides a guarantee of access	Evokes simplicity. Acceptable
7. Do not shrink from the challenge. We will help you with the information you need	"	"	"	The feeling of help is well accepted
8. Assess, request and obtain information tailored to your needs	"	"	"	Puts the burden of action on the potential client. Unacceptable

TABLE II

CATCH PHRASES FOR THE SECOND PHASE OF THE COMMUNICATION CAMPAIGN

Possible catch phrases or ideas	Consistency with campaign theme	Consistency with the different characteristics of the teledocumentation services	Credibility	Acceptability
1. Convert information into profitability for your company. The INCA Network: your information advisor	Consistent with campaign themes (indirectly to the central one)	Implies service flexibility	Provides a guarantee of access	Evokes profitability Acceptable
2. Information consultants: making your activity profitable	"	"	Can cause doubt	The "consultant" image may be discouraging
3. Information: your new resource. Make profits with information	"	Unclear	Provides a guarantee of access	Evokes profitability. Acceptable

TABLE II (Cont.)

CATCH PHRASES FOR THE SECOND PHASE OF THE COMMUNICATION CAMPAIGN

Possible catch phrases or ideas	Consistency with campaign theme	Consistency with the different characteristics of the teledocumentation services	Credibility	Acceptability
4. Today's information is tomorrow's profit. The INCA Network: your information consultant	Consistent with campaign themes (indirectly to the central one)	Implies service flexibility	Provides a guarantee of access	Evokes profitability. Acceptable
5. Information/time: teaming up for your profitability	"	Unclear	"	"
6. Compare your information and what we can give you. The INCA Network: tailored information	Fully consistent with the central and subsidiary themes of the campaign	Implies relevance to information requirements	Offers ideas of comparison and consistency without entering info details. Is conductive to credibility	Evokes an attitude of testing May encourage purchase

ANNEX V

GUIDELINES FOR THE SETTING UP OF AN ASSOCIATION OF DATABASE INTERMEDIARIES AND CREATORS

This Annex outlines the objectives and functions of an association of intermediaries and producers of databases. In doing so, it treats the aims for which the association has been formed, and also the possible (legal) forms to be adopted by it and the statutes that are to govern its constitution and activities.

AIMS

An association of intermediaries and database producers should have the following objectives in order to achieve greatest possible effectiveness:

- To encourage the promotion and dissemination of the use of national and foreign databases;

  This objective can be attained through:

  * organisation of seminars on databases and distributors
  * participation at national and international meetings and/or symposia
  * publication of articles in the general and specialist press
  * establishemnt of facilities for access to the largest possible number of distributors and databases.

- To promote at national level agreed and harmonised working methods among database producers and intermediaries.

  This objective can be attained through:

  * joint organisation of seminars on aspects of common concern
  * organisation of meetings for exchange of experiences among specialists on database access

  * promotion of studies of common interest

- To deal with problems common to database producers and distributors.

  This objective can be attained through:

  * comparison of experiences

  * studies on information user habits and attitudes

- To deal with problems of financing which concern database producers and dissemination centres.

  This objective can be attained through:

  * promotion of studies on: database market potential; market reaction to various marketing policies; tariff policy for online services and products in printed form

  * bringing to the attention of the authorities problems of national development deriving from insufficient economic support for the national information industry.

- To promote the training of specialists in the production of databases and in access to them.

  This objective may be attained through:

  * organisation of appropriate courses at various levels or through continuing education programmes

  * bringing to the attention of the authorities the need to create official education facilities at the diploma and degree levels.

- To centralise and integrate data of members on administration, promotion and training, quality of services, frequency of use of databases, etc.

  This objective may be attained through:

  * establishment of an appropriate information system to provide administrative data

  * The issuing of periodic general and sectoral reports on the achievements of members institutions.

- To take part in on-line user group meetings or meetings of sectoral groups of producers convened by foreign or international organisations; also to represent the interests of the members in contacts with similar or related public and private bodies in other countries.

LEGAL STATUS AND STATUTES

It will be necessary to study the most appropriate legal solutions for effective operation and successful attainment of the above-mentioned objectives. In this section examples of typical requirements are given - but it is clear that the relevant laws in each individual country need to be carefully analysed in this context.

The statutes should contain reference to the following points. Each of which should be the object of an article or several articles in the statutes:

- The purpose and domicile of the group, including:
    * law applicable to the group
    * main purpose of the group and means to attain that purpose
    * legal domicile
    * period of existence
- Membership, such as for example:
    * characteristics and requirements of members
    * formalities for joining the group
    * types of members
    * rights
    * obligations
    * conditions for expulsion
- The economic aspects of the group, such as for example:
    * income
    * expenses
    * budget arrangements.
- Structure and management of the group as evidanced in, for example:
    * geographical or sectoral field of action
    * governing bodies

  - * members of these bodies
  - * functions or attributes of each of the governing bodies
  - * designation of membership and officers of the various bodies.
  - * periodicity of meetings
- Conditions for dissolution of the group, including:
  - * causes of dissolution
  - * mechanisms for liquidation of goods and property

ANNEX VI

EXAMPLE OF AN INFORMATION SEARCH REPORT

(Title page)

TRAINING IN INDUSTRIAL DESIGN

prepared for
- - - - - - - - - - - - -
by
- - - - - - - - - - - - -

TABLE OF CONTENTS

	Colour of pages
Scope and purpose of the report	Yellow
Findings	White
References	Green
Information resources used	Pink

SCOPE AND PURPOSE OF THE REPORT

An inquiry has been conducted on the subject of 'Training in Industrial Design' to locate information on firms offering courses in industrial design.

The inquiry was made use of the following databases:

- Encyclopedia of Associations, produced by Gale Research Company
- COMPENDEX, produced by Engineering Index Inc.
- INSPEC, produced by the Information Division of the Institution of Electrical Engineers
- Books in Print, produced by R.R. Bowker Company.

FINDINGS

1. INTRODUCTION

In this inquiry, information has been obtained on 7 institutions sponsoring courses in industrial design. The information comprises, in the cases of references 1,2,3 and 4, data on institutions working in the field of industrial design (the institution's activities, publications, nature, etc.) whereas references 5,6 and 7 contain bibliographic information on 3 conference papers which deal with the subject of industrial design, from which it has been possible to identify organisations dealing with training in this field.

2. ASSOCIATIONS

From the "Encyclopedia of Associations" databases, it was possible to identify 4 American institutions devoted to both training and publishing in the field of industrial design:

1. PACKAGING EDUCATION FOUNDATION (PEF)
Reston International Centre
Reston
VIRGINIA (VA)- 22091
U.S.A.

(see Ref. 1)

This foundation is an educational organisation providing financial assistance to the colleges and universities of the United States by way of grants which support bachelors or graduate degree programmes in various fields of engineering, particularly industrial design.

2. UNION OF INDEPENDENT COLLEGES OF ART (UICA)
4340 Oak St.,
Kansas City
MONTANA (MO) 64111
U.S.A.

(see Ref. 2)

UICA is a private educational organisation connected with independent art and design colleges. The union is designed to extend the educational programmes of each member college by cooperative efforts. One of the organisational units of this association is the "Industrial Design Department".

The activities of UICA centre on: research and development, innovation in training programs, student exchanges, visits...

3. INTERNATIONAL COUNCIL OF SOCIETIES OF INDUSTRIAL DESIGN (ICSID)
Avenue Legrand, 45
1050 Brussels
BELGIUM
(see Ref. 3)

This is a commercial organisation working for associations, societies and other professional or non-professional groups in 38 countries involved in the promotion of industrial design.

It organises seminars and conferences and has a special Education Committee.

It brings out various publications on industrial design. It regularly holds a general assembly and a congress, the next one being scheduled in Milan in 1983.

4. INDUSTRIAL DESIGNERS SOCIETY OF AMERICA (IDSA)
6802 Poplar Pl.,
Mc Lean
VIRGINIA (VA) 22101
U.S.A.
(see Ref. 4)

This is a professional society of industrial designers run on a commercial basis.

Its function is to promote industrial design, and it has an Education Committee and a Seminars Committee. Amongst its publications is *Industrial Designers*, coming out yearly. It is a member of ICSID (see above) and holds an annual convention, the last of which took place on 20-24 October 1982 in Orlando (Florida); the next is to be held in Chicago in 1983.

3. UNIVERSITIES

A search of the COMPENDEX and INSPEC bibliographic databases detected the work of the Department of Art at Michigan State University, East Lansing, MICHIGAN (MI) 48824, U.S.A., which gives degree (undergraduate) courses on industrial design (see Ref. 5).

Similarly, the Electrical Engineering Department at Pennsylvania State University, University Park, PENNSYLVANIA (PA), U.S.A., is conducting experimental training work for industrial designers, using the latest educational techniques (see Ref. 6).

Moreover, it is worth emphasising the work of Migha Black at the Royal College of Art, Kensington Grove, LONDON SW7, who has studied all aspects relating to industrial design training as a specialised activity within the full range of "engineering design" activities.

The author believes there is a need to train the industrial designer in subjects like anthropology, ergonomics and aesthetics (see Ref. 7).

4. HAND-BOOKS

To supplement the above information, the third operation was an inquiry with the BOOKS IN PRINT database, where two books of interest to industrial design were found:

1. Short Course in Industrial Design (see ref. 8)
2. Successful Industrial Design (see Ref. 9)

REFERENCES

(This section reproduces the actual output references containing information or data, obtained during the search)

REFERENCE NUMBER 1

06627

PACKAGING EDUCATION FOUNDATION (PEF)
Reston International Center, Reston, VA 22091
(703)620-2155
William C. Pflaum Exc.Dir.

Founded: 1957. Staff: 1. To aid and promote all types of packaging education and research, primarily at degree-granting institutions of higher learning. Provides for the personnel needs of the packaging industry through education; attempts to reduce costly orientation and retraining time, raise the level of professionalism in the field and increase creative approaches to packaging productivity and profitability. Provides financial assistance to colleges and universities. Bestows Packaging Leader of the Year award and Robert C. Kyers Scholarship; maintains hall of fame. Grants from PEF haved helped establish undergraduate and graduate degrees in packaging science and engineering at three major universities and have supported undergraduate and graduate level packaging curricula in packaging science and engineering, industrial and mechanical engineering, industrial design and technology, food science and technology, food science and packaging, marketing management, transportation and handling, packaging machinery maintenance and graphic arts and design. Committee: Equipment; Faculty; Fund Raising; Grants; Public Relations; Selection. Publications: (1) Newsletter, monthly; (2) Leader, quarterly; also publishes brochure and pamphlets. Convention/Meeting: annual.

Section Heading Codes: Educational Organizations (05)

(and so forth)

INFORMATION RESOURCES USED

(This section gives a short description of each of the data bases or other information sources used in the search)

Data base: Books in Print

Producer: R.R. Bowker Company

Distributor used: DIALOG No. 470

Areas covered: Provides bibliographic references to all of the books which will be published or republished in the United States during a six-month period as well as information on all editions which have been published or have gone out of print.

Period of coverage: Since 1900 (since 1979 for out-of-print announcements)

Updating: Monthly

Volume of references: 693,000 references in September 1982

Annual increase of references: 48,000

Model reference: (see previous section - reference no. 1)

(and so forth)